



2012

Undergraduate Scholarship at Winthrop University 2012 Book of Abstracts

Winthrop University

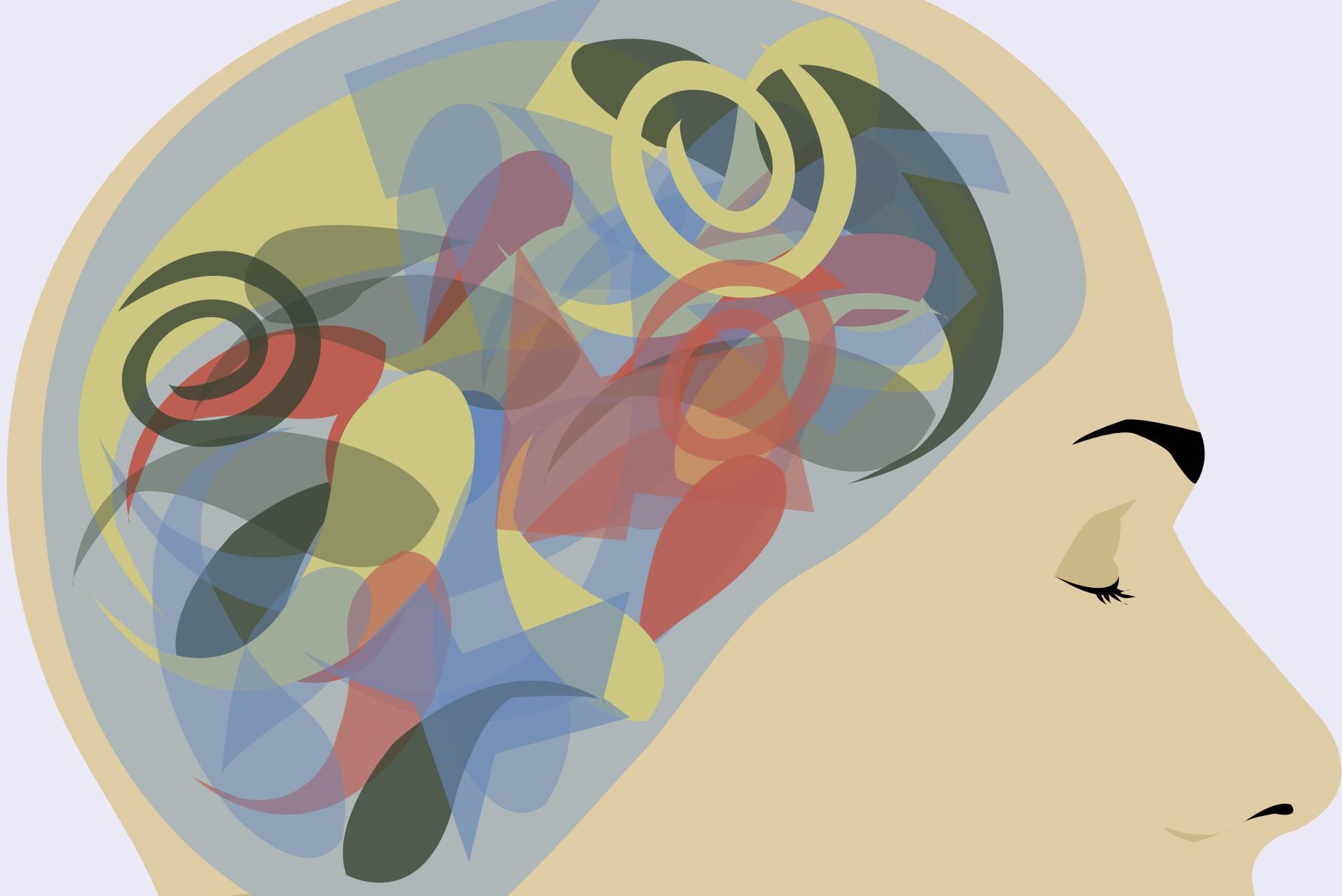
Undergraduate Research Office, Winthrop University

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Winthrop University

UNDERGRADUATE

SCHOLARSHIP

2012 Book of Abstracts

**“We have a hunger of the mind
which asks for knowledge of all around us,
and the more we gain, the more is our desire;
the more we see, the more we are capable of seeing.”**

Maria Mitchell, astronomer
1818–1889

Winthrop University proudly presents the first *Undergraduate Scholarship at Winthrop University Book of Abstracts*. Building off the nine-year tradition of producing abstract books for students in the College of Arts and Sciences, University College is now creating this book to present the scholarship occurring throughout all five academic colleges in the university: College of Arts and Sciences (CAS), College of Business Administration (CBA), College of Education (COE), the College of Visual and Performing Arts (CVPA) and University College (UC).

In addition to the research abstracts, we are using the book to document the students who have completed Honors Theses, applied for Nationally Competitive Awards, and were selected as McNair Scholars.

The Book of Abstracts, which contains the work conducted by students in collaboration with their faculty mentors, reflects the great depth and variety of projects these students were engaged in. Their success illustrates how effective undergraduate research is at providing valuable learning experiences to students and why it is recognized as one of the high-impact educational practices that increase the rates of student retention and engagement. Participating in undergraduate research can help students prepare for professional and graduate programs and enhance their professional and academic credentials to support applications for scholarships, awards, career employment, and graduate and professional schools. Moreover, students have the opportunity to contribute to the creation of new knowledge on the cutting edge of their academic disciplines and apply that knowledge to real world problems.

We congratulate the students for the quality of their work and their willingness to share it with the academic community through publications in refereed journals and presentations at regional, national, and international meetings. We also recognize and appreciate the quality of the mentoring by our faculty who teach the students the art and science of asking questions, how to interpret the results, and how to disseminate the knowledge and creative activities at a professional level.

The production of the book itself is an undergraduate project; we thank Isabelle Reines, a Visual Communication Design major, for designing the cover, and DJ Fullante, Tyler Henslee, Emma Hershberger, and Mika Parajon, also Visual Communication Design majors for composing the book. We also thank the graduate assistant in the Undergraduate Research Office, Joan Rodriguez for editing the abstracts.

Finally, we thank the Winthrop University Alumni Association for funding the Scholars' Day 2012 celebration and the production of this book. Their generous gift is a wonderful testament to the character of our students, past and present, and their devotion to promoting the best of Winthrop University. We hope you enjoy our Book of Abstracts.

Dr. Dwight Dimaculangan
Director of Undergraduate Research

Dr. Gloria Jones
Dean of University College

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Winthrop University

Undergraduate Research Initiative

The Winthrop University Undergraduate Research Initiative (WUURI) supports a student-centered learning environment that fosters student research, scholarship, and creative activities. The Initiative encourages students and faculty mentors to collaborate in the design and implementation of projects and the dissemination of results.

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Kristi Westover, Ph.D. - Biology

Publication Abstracts

Synthesis Of 3-Alkylpyrazolopyridines By Ring Closure Of Pyridine N-Oxide Tosylhydrazones

Published in Lominac, W. J.; D'Angelo, M. L.*; Smith, M. D.; Ollison, D. A.*; Hanna, J. M., Jr. Construction of Pyrazolo[3,4-b]pyridines and Pyrazolo[4,3-c]pyridines by Ring Closure of 3-Acylpyridine N-Oxide Tosylhydrazones. Tetrahedron Lett. 2012, 53, 906 - 909.*

Supported by the National Center for Research Resources (5 P20 RR016461) and the National Institute of General Medical Sciences (8 P20 GM103499) from the National Institutes of Health.

Student: Megan L. D'Angelo 2012

Faculty Mentor: James M. Hanna, Jr., Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Pyrazolopyridines are common substructures seen in a myriad of pharmaceutical compounds. These medications are used in the treatment of inflammation, cancer, viral infections and inhibit the growth of microorganisms. We have developed an improved synthesis of this important ring structure based on the hypothesis that initial reaction of a 3-acylpyridine N-oxide hydrazone with an electrophilic reagent will activate the 2- and 4-positions of the pyridine ring for intramolecular nucleophilic attack by the hydrazone nitrogen. Base-promoted rearomatization via an E2 elimination results in the formation of pyrazolopyridine products. This new method eliminates the need to first halogenate the parent pyridine ring, therefore resulting in a more economical synthesis of the pyrazolopyridine ring system. Previous results from our laboratory indicate that this method works very well for the synthesis of 3-arylpyrazolopyridines, and that mixtures of pyrazolo[3,4-b]pyridine (resulting from nucleophilic attack at the 2-position) and pyrazolo[4,3-c]pyridine (resulting from nucleophilic attack at the 4-position) products are formed. This project is directed toward demonstrating the suitability of this method for the synthesis of 3-alkylpyrazolopyridines. The first attempts utilized 3-acetyl pyridine N-oxide tosylhydrazone and semicarbazone but the cyclizations were unsuccessful. ¹³C-NMR analysis of the starting compounds indicated that both had the (E)-configuration about the imine bond and therefore cyclization was not possible. Changing the acyl group from acetyl to pivaloyl gave 3-pivaloylpyridine N-oxide tosylhydrazone, which had the required (Z)-configuration about the imine bond as demonstrated by ¹³C-NMR. Cyclization of this compound proved possible, and using tosyl anhydride as the electrophile, a mixture of 3-methyl-1-tosylpyrazolo[3,4-b]pyridine (1) and 3-methyl-1-tosylpyrazolo[4,3-c]pyridine (2) was formed (10:1 ratio, 79% yield). The product ratio could be altered by using triflic anhydride as the electrophile, leading to a 1:1 ratio of 1 and 2 in 82% yield. Current efforts in our laboratory are directed toward developing conditions in which 3-acylpyridine N-oxide hydrazones can be cyclized regardless of the stereochemistry about the imine bond.

“Touching a Secret Spring”: Catherine’s Sexual Awakening in Northanger Abbey

Published in The Sigma Tau Delta Review, Vol. 9. DeKalb, IL: Sigma Tau Delta, Inc., 2012

Student: Cayla Eagon 2012 (McNair Scholar)

Faculty Mentor: Leslie Bickford, Ph.D.

CAS – Department of English

(ENGL 300 – Bickford)

Of the criticism existing on Jane Austen’s *Northanger Abbey*, much of it veers away from the psychoanalytic. Gloria Sybil Gross attributes this detail to the novel’s parodic elements. However, this paper argues that by applying a psychoanalytic perspective to the text, its Gothic features and Austen’s parody of them reveal the protagonist—Catherine Moreland—as a young woman with unconscious sexual desires that allow her to explore and become comfortable with her own sexuality. Using Freud’s ideas of the unconscious, a close examination of the language used in conversations between Catherine and Henry, her hero figure, illustrate sexual urges in both characters. Austen successfully grants Catherine a sexual awakening with a supportive partner. This argument sets a new tone for *Northanger Abbey* and does so by relying on a psychoanalytic approach to the Gothic and parodic elements throughout the novel.

Synthesis of 3-Phenylpyrazolopyridines Via Cyclization of 3-Benzoylpyridine N-Oxide Tosylhydrazone

Published in Tetrahedron Letters 2012, 53, 906 – 909 Lominac, W. J.; D’Angelo, M. L.; Smith, M. D.; Ollison, D. A

Supported by the National Center for Research Resources (5 P20 RR016461) and the National Institute of General Medical Sciences (8 P20 GM103499) from the National Institutes of Health. Additional support was received from the Winthrop University Research Council

Student: William J. Lominac 2013

Faculty Mentor: James M. Hanna, Jr., Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Compounds containing the pyrazolo[3,4-b]pyridine substructure exhibit a variety of biological activities, including anti-inflammatory, anti-cancer, anti-viral, and anxiolytic effects. Typically, the synthesis of pyrazolo[3,4-b]pyridines requires a leaving group at the 2-position of the pyridine ring, the installation of which often occurs under relatively harsh reaction conditions. We envisioned that by exploiting the increased electrophilicity of the 2-position of a suitably “capped” pyridine N-oxide hydrazone, the need for installation of the leaving group could be eliminated. Furthermore, we recognized that using this approach, two regioisomeric products could be formed – the pyrazolo[3,4-b]pyridine derivative and the pyrazolo[4,3-c]pyridine derivative, suggesting the possibility of regiocontrol which could lead to an efficient way to produce either isomer from a common intermediate. Results from our laboratory have shown that the desired cyclization proceeds smoothly under mild conditions using the tosylhydrazone derived from 3-benzoylpyridine N-oxide. In addition, we have found that moderate control of regioselectivity is possible.

Synthesis of Benzisoxazolo[2,3-a]Azinium Tetrafluoroborates

Published in Tetrahedron Letters., 2012, 53, 612 – 615, Myers, J. T.; Hanna, J. M., Jr. Palladium-Catalyzed Direct Arylation of Pyridine N-Oxide with 2-Bromoacetanilides. Synthesis of Benzisoxazolo[2,3-a]pyridinium Tetrafluoroborates.

Supported by the National Center for Research Resources (5 P20 RR016461) and the National Institute of General Medical Sciences (8 P20 GM103499) from the National Institutes of Health. Additional support was received from the Winthrop University Research Council.

Student: Jeffery T. Myers 2012

Faculty Mentor: James M. Hanna Jr., Ph.D.

CAS – Department of Chemistry, Physics, and Geology

The benzofuropyridine subunit is found in many compounds of pharmaceutical relevance. Related to these compounds are the lesser known benzisoxazolo[2,3-a]pyridinium salts (1) of which, prior to this work, only two examples had been reported. Abramovitch et al. showed that these compounds could be synthesized through an intramolecular ring closure of a diazonium salt derived from a 2-(2-aminoaryl)pyridine N-oxide and a recent discovery by Fagnou et al. hinted that the starting material required for this reaction could be synthesized by the direct arylation of pyridine N-oxide at the 2-position with an o-bromoacetanilide. We felt that the combination of these two processes could lead to a general synthesis of the benzisoxazolo[2,3-a]pyridinium ring system. In our laboratory, we have found that direct arylation of pyridine N-oxide with various 2-Bromoacetanilides using microwave heating gave the desired 2-(2-acetaminophenyl)pyridine N-oxides in isolated yields from 45-76%. These compounds were then subjected to hydrolysis, diazotization, and cyclization to produce the benzisoxazolo[2,3-a]pyridinium tetrafluoroborates in isolated yields ranging from 71-86%. This protocol has been extended to the direct arylation of quinoline N-oxide to give 2-(2-acetaminophenyl)quinoline N-oxides. Future work will involve the cyclization of these compounds and, in collaboration with Dr. Takita Sumter of Winthrop University, evaluation of the cytotoxic activity of these novel compounds.

Honors Thesis Abstracts

The Honors Program at Winthrop University is designed to enrich the college experience for highly talented and motivated students. Through interactions with outstanding faculty and peers, a vital community of scholars is created that embraces the pursuit of knowledge for the enhancement of intellectual and person growth.

Founded in 1960, Winthrop's Honors Program is one of the oldest in the nation. Then President Charles S. Davis, realizing the importance of an enriched education for high-achieving students appointed faculty member, Dr. John S. Eells, as the founding director of our Honors Program. Dr. Eells became a member of a national organization that was formed as a clearinghouse for information on honors activities, the Inter-University Committee on the Superior Student (ICSS). The ICSS received funding from the Carnegie Foundation, the National Science Foundation and the U.S. Office of Education to help establish honors programs at colleges and university across the U.S. When the ICSS disbanded in 1965 for lack of external funding, several members of that group formed the National Collegiate Honors Council (NCHC) in 1966 which was committed to maintaining a professional association of honors educators. Dr. Eells was elected the fourth President of NCHC in 1970.

Over the years, the Winthrop University Honors Program has continued to flourish, and in the early 1980's the program was divided into a program for the entering freshmen and a program for the upperclassmen. At that time, there was a national trend toward creating "learning communities," (see Gabelnick, 1986, for a review) and the Winthrop honors administration created the Clustered Learning Units for Educational Success (C.L.U.E.S) program in which new honors freshmen enrolled in a cluster of three honors classes together. This program later became the Freshman Honors Program. Seeing the need for a more cohesive honors experience, the honors administration under the leadership of Dr. Anthony J. DiGiorgio combined the programs in 1997, and that continues to be the case today.

Today the Honors Program at Winthrop University enrolls approximately 200 students from each of the degree granting colleges of the university. To graduate with an Honors Program Degree, a student must complete 23 hours of honors courses which includes an honors thesis while maintaining at least a 3.30 grade point average. The honors thesis is the culminating experience for our Honors Program students in which they work collaboratively with a faculty director and two faculty readers to produce a project that evaluates knowledge, concepts and methodology, examines major issues, integrates complex information, and develops and appropriately defends an argument. While most students complete the honors thesis during the course of the senior year, some students complete the project earlier in their academic careers. The Honors Thesis Colloquium is an annual event designed as a venue for the student to celebrate this accomplishment. Now in its eleventh year, this year's colloquium will showcase twenty-six students presenting their honors thesis research in the form of an oral presentation or poster.

The Honors Program students and I would like to thank the faculty members who have worked as honors thesis directors or readers throughout this process. Their expertise, guidance and commitment should be highly commended on this auspicious occasion.

Dr. Kathy A. Lyon

Director of the Honors Program

2011-2012 Honors Advisory Committee

Kathy A. Lyon, Ph.D., Chair, Psychology

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The Classification of False Tendons of the Left Ventricle of Canine Hearts

Student: Jamie Ashbrook 2012

Honors Thesis Committee: Lee Anne Cope, Ph.D.; Laura Glasscock, Ph.D.; and Evelyne Weeks

CAS – Department of Biology

The hearts of humans have been extensively studied and the presence of false tendons within the right and left ventricles has been noted in some of this previous research, but their clinical significance has only been recently studied. It is likely that false tendons play a role in many cardiac conditions such as; thrombosis, premature ventricular contractions, murmurs, left ventricular outflow obstruction, and ventricular arrhythmias. With this likelihood came the need to develop a classification scheme of these false tendons for later anatomical research and their involvement in the aforementioned conditions. The current classification scheme has been developed by several researchers primarily using human hearts and a few select animal hearts. There are, however, limitations with this scheme due to the fact that there are some types of tendons present in the hearts of animals, but not present in humans. Also, the classification scheme used thus far is not consistent among all of the published literature. Thus, the intention of this project is to develop a classification scheme specific for the false tendons in the left ventricle of the canine heart. The classification scheme used to classify the tendons in the left ventricle of human hearts will be used as a template, but modified based on tendon, anatomical, and species differences. Due to recent veterinary technology advancements, it is now possible to identify these false tendons, and with this identification comes the need to classify the tendons and examine a possible connection with the tendons and certain heart related disorders of the canine.

Stress Levels in Eastern Screech Owls (*Otus asio*) Kept in Various Captive Settings

Presented to the Department of Biology, March, 2012 and at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the Winthrop University Research Council

Student: Ashley Bateman 2012

Honors Thesis Committee: William Rogers, Ph.D.; Laura Glasscock, Ph.D.; and Jason Hurlbert, Ph.D.

CAS – Department of Biology

Stress causes similar hormone-mediated reactions in vertebrates. Hormone assays, especially for birds and mammals, are now available and have been used to detect acute stress in both the field and in captive situations. Particularly for birds, human handling has been shown to induce acute stress, especially in recently acquired birds. Chronic stress can be caused by frustration from inability to exhibit migration and mating behaviors in captive situations because the birds cannot participate in activities normal for their species' life history. Testing for stress was previously a difficult task due to the quick response of the animal's body when handled for drawing blood. Here we present a noninvasive process developed for monitoring stress that could allow better care of animals by institutions, hobbyists, and others especially if it were made commercially available. The technique uses corticosterone levels retrieved from feces and analyzed using HPLC (high-performance liquid chromatography) and ELISA methods. We tested Eastern Screech Owls, *Otus asio*, in various captive situations on a seasonal basis over the course of a full year to assess their stress levels.

Foucauldian Panopticism: The Gaze in Selected 19th Century Literature

Presented at Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Shelby Borders 2013

Honors Thesis Committee: Amy Gerald, Ph.D.; Leslie Bickford, Ph.D.; and Darren Ritzer, Ph.D.

CAS – Department of English

(ENGL 211 – Jordan)

Throughout history, women have often been perceived as hysterical and weak. This perception has been reflected through the representation of women in literature which has resulted in a limited scope of female normality and morality creating characteristics fundamentally different than male characters. Though these characteristics have been contributed as natural female characteristics, the theories of Jeremy Bentham, a 18th and 19th century Englishman, can be applied as a possible reason for these reactions. Bentham's Panopticon, the theory of punishment wherein a constant unseen gaze peers at inmates theoretically creating paranoia and psychological breakdown, creates characteristics similar to those that women in literature seem to exhibit. In this paper, I will outline the characteristics of three various characters in novels. First, I will review the Panoptic literature that has been written on The Woman in Charlotte Perkins Gilman's *The Yellow Wallpaper*, then I will conduct my own analysis on The Governess in Henry James' *The Turn of the Screw* and Jane Eyre in Charlotte Bronte's *Jane Eyre*. In this analysis, I will consider the "gaze," the symbolic Panopticon implemented by society, and argue how characteristics present in stereotypical representations of women are not inherent in women due to gender or sex, but because women are most objectified and thereby most affected by the Panoptic gaze of society.

A Historiography on the Bill of Rights

Presented at Southern Regional Honors Council Conference, March, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Melody Chapman 2012

Honors Thesis Committee: Jason Silverman, Ph.D.; Steven Smith, Ph.D.; and Virginia Williams, Ph.D.

CAS – Department of History

Historians have been affected by their experiences and the culture in which they live or have lived. This thesis will research how various authors, throughout a ninety year period, addressed the topic of the Bill of Rights, a central piece of legislation in American History. Research will focus on how these different accounts treat the topics of: original influences, the writing process, and the implementation of the American Bill of Rights. Most historians site the Magna Carta, the English Bill of Rights, State Constitutions, Thomas Jefferson, James Madison and George Mason as clear influences of the American Bill of Rights. The writing process includes the politics surrounding the need for a Bill of Rights, and the determination that a separate Bill of Rights would be added to the constitution. The implementation of the document aims to compare how the document has been used by the government and in court cases according to different sources. Each document or person has a clear link to the Bill of Rights, but some historians emphasize certain parts of this list over others. Sources are reviewed for their main ideas and then those understandings are compared.

Instrument Development in Atomic Emission Spectroscopy

Presented at the Southern Regional Honors Conference 2011 and 2012, and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Jamaal Cox 2012

Honors Thesis Committee: Cliff Calloway, Ph.D.; T. Christian Grattan, Ph.D.; and Cliff Harris, Ph.D.

CAS – Department of Chemistry, Geology and Physics

An atomic emission spectrometer with aluminum atomization and tungsten coil emission light source is described. The light source is prepared by pipetting 20 μL of a slightly concentrated metal solution onto a tungsten coil. Experimental parameters have been optimized for five test elements to give limits of detection obtained with this system that are in most cases as good as those obtained through traditional inductively coupled plasma source. This system offers an inexpensive emission source with the ability to determine most metals.

Quantitative Determination of Trans Fatty Acids by Gradient Flow Analysis — Fourier Transform Infrared Spectrometry (GFA-FTIR)

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Jessica S. Creel 2012

Honors Thesis Committee: Cliff Calloway, Ph.D.; Lennart Kullberg, Ph.D.; and Ponn Maheswaranathan, Ph.D.

CAS – Department of Chemistry

The analytical use of Fourier-transform infrared spectroscopy (FTIR) in the determination of *trans* fatty acids is important to understand. While these fatty acids can be found in a variety of foods, the major sources are products that contain commercially hydrogenated fats. Even though FTIR remains one of the most popular tools for this analysis, there are several techniques that can be applied to this method to make it more effective. Gradient flow analysis (GFA) is a natural candidate to improve the FTIR analysis of *trans* fats. Gradient flow analysis combines the internal standard method of analysis with the standard addition method of analysis, eliminating matrix interferences and changes over time that can be found when conducting these methods separately. The GFA method also strives to reduce the volume and handling requirements for potentially hazardous substances, along with decreasing the time required for an analysis to produce a result. The GFA technique utilizes a three pump system that will flow directly into the FTIR using a flow cell. Results have shown pump one should contain the unknown oil sample that contains *trans* fats, pump two should contain Trielaidin and mineral oil (standard addition compound and internal standard compound, respectively) in about a 50:50 ratio and pump three will contain the CS_2 solvent. The oil sample will be pumped continuously at a rate of 0.3mL/min. Meanwhile, the standard syringe, with 50:50 Trielaidin and mineral oil, will be combined with the CS_2 solvent using a gradient composition from 0 to 100% at a constant flow rate of 0.70mL/min. The improvement of the FTIR method is important for both the accuracy desired in the present day and for future, more complex analyses. In addition to increasing accuracy, the new method, Gradient Flow Analysis FTIR, is expected to provide a safer and more efficient means to determine the levels of *trans* fat.

Cloning of Human Sphingosine Kinase 1

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the South Carolina IDeA Networks of Biomedical Research Excellence Grant from NIH

Student: Zachary Curry 2012

Honors Thesis Committee: Jason Hurlbert, Ph.D., Nicholas Grossoehme, Ph.D. and T. Christian Grattan, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Human sphingosine kinase 1 (SK1) is a sphingolipid-metabolizing enzyme responsible for regulating cellular levels of sphingosine-1-phosphate (S1P), which has been shown to promote antiapoptotic cellular proliferation. Current anticancer therapies, including radiation and many chemotherapeutics, can initiate apoptosis by activating sphingomyelinase, forming ceramide from cellular sphingomyelin. Ceramide can be further processed by ceramidase to form sphingosine, which then serves as a substrate for SK1 to produce S1P. Generation of S1P within a cell has been shown to assist in the evasion of apoptosis. Recent research has shown elevated levels of SK1 expression in a variety of human malignant tumor cells, reducing their response to current therapies via S1P generation. Thus, SK1 has become an attractive target for novel anticancer therapeutics. In order to generate effective antagonists of SK1 action, it is helpful to have a high-resolution structure of the protein. This could enable structure-based inhibitor design to maximize the biological efficacy of novel compounds. Our current laboratory efforts are focused on expressing and purifying SK1 from a bacterial expression system for future crystallographic studies. In order to achieve this goal, recombinant human sphingosine kinase 1 will be inserted into pET 15a, 21a and 28a expression vectors for use in future expression studies.

“New Eyes and a New Mind”: Wilkie Collins’ *Armada* and Ways of Seeing

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Cayla Eagon 2012 (McNair Scholar)

Honors Thesis Committee: Casey Cothran, Ph.D.; Siobhan Brownson, Ph.D.; and Gregg Hecimovich, Ph.D.

CAS – Department of English
(HONR 450 –Cothran)

Wilkie Collins has become a literary figure celebrated for his mystery novels *The Woman in White* (1860) and *The Moonstone* (1868); however, this recognition neglects the prolificacy with which Collins wrote during the Victorian period. As Jeanne F. Bedell notes, “Wilkie Collins made contributions more substantial than his current reputation indicates to the development of mystery and suspense.” This research, therefore, attempts to see Collins in a new way by exploring the various themes of seeing, looking, and blindness in his less frequently examined novel *Armada* (1866). In order to establish a new perspective that draws attention to one of Collins’ less-recognized works, existing scholarship on Collins will be examined for trends. This study consults scholarship by John Sutherland, Catherine Peters, Jenny Bourne Taylor, Tamar Heller, Maria K. Bachman, Don Richard Cox, and others. Furthermore, the study will trace instances of seeing/not seeing as a theme throughout the text. As this research will show, vision is an ambiguous device portrayed both positively and negatively at different intervals in *Armada*. Collins’ manipulation of vision, with its differing consequences, leads readers to question the role of seeing in the novel while Collins also seems to be asking readers to question their own ways of seeing. Ultimately, this metavisoin

of *Armada* will further the discussion of the text and rightfully recognize Collins as a prolific contributor to Victorian literature and culture.

Apologetic Athletes

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Kyrsten Fandrich 2012

Honors Thesis Committee: Kathy Davis, Ph.D.; Shelley Hammill, Ph.D.

COE – Department of Physical Education, Sport & Human Performance

Many researchers have taken a look at the area of female athletics and been made aware of the increased sense of apologetic behavior being expressed in sports. The apologetic behaviors being observed included the increased efforts for female athletes to appear feminine, to apologize for aggressive behavior, and to represent heterosexuality to the public eye. However, with all of the research that has been completed, it is still very difficult to compare apologetic behavior throughout numerous regions, several sports, various time periods, and differing athletes. For this study, previous researchers Davis-Delano, Pollock, and Vose (2009) created a questionnaire that can be utilized to gather the above listed comparisons. In an attempt to assist in gathering further data in order to replicate their results, their questionnaire will be utilized for the women's basketball, volleyball, softball, and soccer teams at Winthrop University. This questionnaire, having already been developed by the study in question, will require IRB approval, as well as the consent of the student athletes participating. All data will be anonymous. In this comparison, the difference of apologetic behavior between Southeastern female athletes will be evaluated in comparison to other geographic regions. Among the Winthrop women's teams, there are many students from regions other than the Southeast whose results will be assessed but will not be directly relevant to the proposed study. It has also been reported that apologetic behavior may be more apparent in team sports as opposed to individual sports, so only these team sports will be the focus of the study. During the process of the study, it will also be interesting to ascertain which sport shows the highest levels of apologetic behavior and show how these data compare to previous data collected in the Northeast.

Determining the Least Stressful Environment for the Domestic Cat (*Felis catus*) through Analysis of Cortisol Levels in Indoor versus Outdoor Cats

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Supported by the Luckett Davis Endowment, Winthrop University, January, 2012

Student: Brittany Fournet 2012

Honor Thesis Committee: William Rogers, Ph.D.; Laura Glasscock, Ph.D.; and Janice Chism, Ph.D.

CAS – Department of Biology

Many people own domestic cats. These cats typically live in one of three different environments. They are normally kept inside, outside, or let in and out of the home. The purpose of this experiment was to determine which environment is better for the cat through analysis of stress levels of cats under different care regimes. Three different groups of cats were analyzed. There were five cats in the outdoor group, five cats in the indoor group, and five cats in the indoor/outdoor group. Cat hair samples were collected during three different times, once in October, once in November, and once in December 2011. Between 50-100 mg of hair were weighed and placed into a scintillation vial. Methanol was placed in each vial and the vials were sonicated and incubated overnight. The vials were centrifuged and the methanol was

allowed to evaporate. Cortisol concentrations were determined using an enzyme-linked immunosorbant assay (ELISA) designed for cortisol. The cortisol levels of the three groups were compared to determine whether there was any significant difference in the stress levels of the three different groups of cats. I predict that the stress levels will differ among the three different groups of cats in the three different care regimes. My hypothesis is that the outdoor group will have the highest levels of cortisol, the indoor/outdoor group will have the next highest levels of cortisol, and the indoor group will have the lowest levels of cortisol, indicating the least amount of stress.

A Narrative in Metal

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Megan Gainer 2012

Honors Thesis Committee: Courtney Starrett; Eli Arenas-O'Neil; and Karen Derksen

CVPA – Department of Fine Arts

(ARTS 456, 555 and 556 – Starrett)

The act of creating is akin to having a family. You bring something into the world that is only noticed on the surface, the end result, until you get a little closer and begin to take in the notion that there might be something under the decorative exterior. Take a closer look and you might just discover exactly how intricate and beautiful the imperfections of hand-crafted objects really are. When I'm forging ideas, I try to let my mind wander. Only then do I discover the concepts that are true to my being, teachings that come from the mountains and back roads of West Virginia where Montani Semper Liberi, men in summer fields make hay while the sun shines, and family is the strongest tie you'll be able to find. This vignette, deep in traditions and heritage, as well as the importance found in things made long ago when handmade was not only common, but a necessary art unto itself and even the smallest everyday items were treasured, is the true focus of my work. To understand both myself and where I come from and relate what I hold dear about the past, the history of my roots and keeping true to those roots, in a world whose only focus seems to be on moving forward as soon and as quickly as possible, is a tough job as complex and intricate as the inner workings of my grandfather's wind up pocket watch. What inspires my artwork is strongly tied to my experiences and memories. I have always loved listening to the stories told by my family, knowing well that the more stories you have, the more life you've lived. Taking these intangible concepts that have so deeply impacted my life, I try to give them a body, breath, a way to share with others just how influential the past can be on the present. I wish to exhibit my work, or images of, in a way that expresses the evolution of this personal narrative and the techniques used in its creation with the goal of expressing that no story or memory is too small or insubstantial to help mold a person's life. This will include an artist statement which will express my inspirations, visual ascetic, and how they merge within my art.

Data Mining and the Loss of Consumer Privacy

*Presented at Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: John Gamble 2012

Honor Thesis Committee: Barbara Fuller, Ph.D.; Terrence Ryan, Ph.D.

CBA – Department of Management and Marketing

This thesis will examine how marketers and companies use data mining to collect information on consumer demographics, psychographics, and purchasing behavior. Questions to be

addressed in this research include: How much knowledge consumers have regarding their privacy in a commercial environment, how this knowledge affects, or would affect, their purchasing decisions, and the ethics of information collecting as applied to varying demographic audiences. Several different tactics and information collection strategies of common companies will be analyzed through electronic and literary resources. Privacy and end user agreements will also be examined in order to identify the common types of information these companies collect and what the consumer agrees to let these companies do with that information when accepting their terms. Information regarding the consumers' knowledge and perceived ethics concerning data mining will be obtained via electronic and print survey, and will seek at least 300 responses.

If the Glass Shoe Fits: The Princess Paradox

Presented at the Southern Regional Honors Council Conference, March 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Meagan Hogarth 2012

Honor Thesis Committee: Matthew Hayes, Ph.D.; Kathy Lyon, Ph.D.;
and Stephanie Milling, Ph.D.

CAS – Department of Psychology
(HONR 450 – Hayes)

The present study will investigate the correlation between the internalization of a princess ideal and the resulting career path, current feminine ideal and overall life satisfaction. Princess qualities have been defined as both physical traits (such as young, very thin, and beautiful; Bonds-Raacke, 2008) and personality traits (such as goodness, kindness, and a caring nature; Baker-Sperry, 2007). Previous to the current study, the majority of research in this area has been done with children. However, if a cohort has grown up exposed to the Disney princess and fairytale stories and films, then the question as to whether or not there was some longitudinal affect of the values presented by those stimuli remains unanswered. The study at hand intends to explore if the effect of the princess media perseveres through childhood and adolescence into young adulthood. The data will be collected using a survey. Participants will rate their endorsement of the ideals perpetuated by the princess stories. The survey will also measure career selection using choice of major. Majors will be classified as a relational occupation, such as nursing or teaching, or non-relational occupation, such as business administration or management. The measures of the participant's current feminine ideal will be measured using the Conformity to Feminine Norms Inventory (Moradi & Parent, 2011). The participants in the study will be comprised exclusively of women who are currently pursuing an undergraduate degree. Correlations will be computed between princess ideal, feminine ideal, and life satisfaction. Differences in the princess ideal between relational and non-relational occupations will be compared using a t-test. The results are expected to demonstrate that the more internalized the idea of "Princessness" is, the more likely the participant is to demonstrate a conformity to the feminine norms and pursue a relational career choice.

Molecular evolution of swine, avian, and human H5N1 Influenza A in Southeast Asia

*Supported by the South Carolina IDeA Networks of Biomedical Research
Excellence Grant from NIH*

Student: Matthew Horn 2012

Honor Thesis Committee: Kristi Westover, Ph.D.; William Rogers, Ph.D.;
and Victoria Frost, Ph.D.

CAS – Department of Biology

The spread of the highly pathogenic and potentially pandemic avian H5N1 influenza strains threatens not only birds, but other non-avian hosts, such as swine, canines, and humans. Within the last year, avian strains of influenza A epidemic have been documented in Indonesian swine, and even more alarming, Indonesia has reported the greatest number of human cases since the virus first appeared in humans. The evolution of the virus has amplified its ability to spread from mammal to mammal and due to biochemical similarities, there is worry for increasing transmission of the disease from pigs to humans. To investigate this, complete genomes of Indonesian and Chinese influenza A H5N1 strains from avian, swine, and human hosts were collected, translated, and aligned. To date, phylogenetic reconstruction has been completed using the PB2 segment for Indonesian and Chinese swine sequences. Initial results from analysis of the PB2 segment, which plays a significant role in the polymerase enzyme during DNA replication and the initiation of transcription, show a significant relationship between the Chinese strains from the Henan and Anhui provinces and the Indonesian strains. We intend to expand the analysis to include complete genomes, as well as repeat the phylogenetic work with all Indonesian hosts. Further analysis of the swine, avian, and human H5N1 strain may give insight into the transmission of the disease in Asian countries and supply information on future strain adaptations and possible eradication.

Relations Among Mindfulness, Rumination, Compensatory Health Beliefs, and Holiday Behaviors

Presented at the Southern Regional Honors Conference in March, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Elise Howell 2012

Honors Thesis Committee: Merry J. Sleigh, Ph.D., John Bird, Ph.D.,
and Kathy Lyon, Ph.D.

CAS – Department of Psychology

This study examined relations among mindfulness (the state of focusing on and experiencing the present moment), rumination (a tendency to dwell on a situation), self-compassion, and compensatory health beliefs (CHB; the idea that healthy behaviors can compensate for unhealthy behaviors). In addition, we examined how these cognitive variables related to participants' health behaviors during the 2011 holiday season. In other words, we wanted to see if participants' thoughts predicted their behaviors. Participants were 138 adults who responded to an online survey. Results revealed that individuals high in mindfulness felt that it was important to make healthy choices over the holidays, and participants high in self-compassion engaged in healthy holiday behavior. In contrast, participants high in CHB felt that the holiday season was a time to focus on things other than health and reported overeating during the holidays. Being overweight and having unhealthy habits was also associated with the belief that focusing on health is not important during the holiday season. These unhealthy participants also were most focused on maintaining their New Year's Resolutions, perhaps as a strategy to compensate for their holiday behaviors. These findings are the first to demonstrate links between some of these cognitive variables, and to show their connection to holiday health behaviors.

For-Profit Higher Education and Financial Aid: Are Differences Driven by Schools or Students?

*Presented at Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Emily K. Pratt 2012

Honors Thesis Committee: Laura Ullrich, Ph.D.; Robert Stonebraker, Ph.D.;
and Cynthia Macri, Ph.D.

CBA – Department of Economics
(HON 451 – Ullrich)

Acquiring a college education has become increasingly important in maintaining a competitive edge in the job market over the past two decades; the number of colleges and universities in the United States has grown right along with higher education's importance. While traditional four-year and community colleges are expanding and multiplying, so are proprietary, for-profit colleges and universities. It has been noted that the next "bubble" to burst could be in student debt, which is cause for concern for students, their families and taxpayers as well. At the moment, proprietary schools receive federal aid and loans through taxpayer supported programs, as well as private lending institutions. The alarming amount of debt incurred by for-profit students has triggered several investigations by the GAO. GAO found that for-profits tend to overstate the educational benefits their students acquire as well as exaggerate graduates' potential income. Misleading marketing and financial aid practices may be associated with remarkable differences between proprietary and not-for profit student debt. After using probit regression to find correlation between student demographics and for-profit attendance, I use ordinary least squares regressions to determine borrowing differences between for-profit and traditional college students. The National Center for Education Statistics 04/09 Beginning Postsecondary Longitudinal Study restricted-use data set is utilized. Results show for-profit specific characteristics lead to increased student debt burdens.

On Poverty and Terror: An Examination of Possible Connections between Poverty and Terrorism

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Robert Ralston 2012

Honor Thesis Committee: Jennifer Disney, Ph.D.; Adolphus Belk, Ph.D.;
and Christopher Van Aller, Ph.D.

CAS – Department of Political Science
(PLSC 490H – Disney and Belk)

Much research has been conducted regarding the impact of poverty and underdevelopment on terrorism. This paper aims to summarize the hotly contested scholarly debate on the relationship between poverty and terror. Specifically, the paper will summarize arguments made after September 11, 2001, and will seek to provide an overall feeling for the debate at-large.

Minister of Movies: Goebbels and the Nazi Film Industry, 1933-1945

Presented at the Southern Regional Honors Conference, March, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Allison W. Raper 2012

Honors Thesis Committee: Dave Pretty, Ph.D.; L. Andrew Doyle, Ph.D.;
and Donald Friedman, Ph.D.

CAS – Department of History

Since his death in 1945, Dr. Joseph Goebbels's control over the German film industry has been the subject of academic and popular media debate. As Minister of Propaganda in the German government, Goebbels officially oversaw all things concerning journalism, radio, and particularly film. An avid film aficionado, Goebbels believed the new and developing medium was the ideal tool to spread the Nazi message and gain support for the German government's policies. Through exploring Goebbels's involvement in the Nazi film industry, this research seeks to determine the degree to which the implicit images and messages present in the popular films of the day resulted from Goebbels's personal involvement. While director Leni Riefenstahl's overt Nazi propaganda documentaries are the most studied, they account for only a small percentage of the German film industry's output. In contrast, costumed dramas, musicals, and light comedies dominated the German theaters during the period and were greatly enjoyed by the propaganda minister. Thus, a careful analysis of Goebbels's involvement in production of these films provides insight into the full extent of the minister's influence and forms the focus of this research. Beginning with a historical and cultural framework using new scholarship on Goebbels and his role in the German cultural community, the research moved to studies of Goebbels's life and selected biographies and memoirs of the actors and directors involved. Independent study of the films themselves, along with analysis of their productions assisted in identification of the Goebbels touch. Finally, examination of Goebbels's personal diaries provided unique insight into the minister's thoughts about these films and his power over film production. Goebbels's personal involvement varied from film to film. The Reich Minister maintained close control over the German cinematic content. While the Goebbels touch is more covert in the popular media films studied than it is in the Nazi documentaries, his ideological messages are cleverly interwoven into the themes, plots, dialogue, and imagery. So deeply were these techniques ingrained in his films that they resulted in a cinematic style, which continues into modern German filmmaking.

Gamers' and Non-Gamers' Perceptions of Video Game Playing

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Daniel L Selvey 2012 (McNair Scholar)

Honors Thesis Committee: Darren Ritzer, Ph.D.; Jane B. Smith, Ph.D.,
Merry J. Sleight, Ph.D.

CAS – Department of Psychology

The number of Americans who play video games has steadily risen since companies like Nintendo and Sony introduced gaming consoles to the home. According to the Entertainment Software Association ([ESA] 2012), 72% of American households currently play computer or video games. And teens and adolescents aren't the only ones that engage; the average gamer is 37 years old and has been gaming for 12 years (ESA, 2012). In the past, research into video games has focused primarily on aggression and addiction. For example, Barlett, Harris, and Baldassaro (2007) found that playing first-person shooter video games increased aggression in individuals as their playtime increased. Polman, de Castro, and van Aken (2008) supported these findings, showing that actively playing violent video games increased aggression

in adolescents, while passively observing a violent video game did not. In studying addiction, Skoric, Teo, and Neo (2009) assessed video game addiction in adolescents and found that addiction was negatively correlated with both academic achievement and emotional affect. Despite these findings and others like them, the video game industry continues to thrive with consumers spending \$25.1 billion on video games in 2010 (ESA, 2012). The purpose of this study is to examine gamers' and non-gamers' perceptions of video games and video game playing. I hypothesize that there will be significant differences in the responses of these two groups on variables such as perceived amount of gameplay, benefits of playing video games, emotional and mood-based effects of video games, and stigma against gamers. Participants will be 60-80 adults who respond to an online survey. The survey will include questions related to the emotional and psychological effects of gaming, secrecy and guilt, the right to play, and demographic questions among others. Gender variables will be analyzed with a t-test. Correlations will be used to examine relations among variables. The data gathered will allow for further understanding of the motivations and behaviors of gamers and how those factors are affected by societal perceptions and misperceptions.

Relations Among College Students' Hooking Up Behavior, Shame, and Guilt

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012, and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Nichole Shelly 2012

Honors Thesis Committee: Merry J. Sleigh, Ph.D.; Kathy A. Lyon, Ph.D., Tracy Griggs, Ph.D.

CAS – Department of Psychology
(HONR 450 – Sleigh)

This study focused on the aftermath of one of the most prominent risk behaviors among current college students - hooking up. Prior research has focused on the reasons why 75% of college students hook up (Heldman & Wade, 2010), and how these behaviors can lead to sexual assault and unwanted pregnancies, but few studies have been done on the negative feelings afterwards and their impact on the likely action a student will take. The goal of this study was to determine if college students who are prone to shame versus guilt have different patterns of hooking up behavior. College students (n = 130) responded to the Guilt and Shame Proneness scale (GASP), comprised of sixteen questions, in order to assess whether the participant was more guilt-prone or shame-prone. Afterwards, students were asked about their hooking up tendencies. Hooking up was defined as "Any sexual encounter between two individuals who may or may not know each other well, and for which there is likely to be no future commitment." The results showed that participants with a tendency toward guilt (associated with repair actions) had fewer sexual partners and less sexual activity during their first hook-up. Participants with a tendency toward shame (associated with withdrawal) reported feeling forced to go further and showed an increased amount of sexual partners. In other words, guilt-based and Shame Negative proneness were linked to lower levels of hooking-up behavior while Shame Withdrawal proneness was associated with a higher number of sexual partners.

Cutting Cursive; Is Handwriting Still Important to Today's Pre-Service Teacher?

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Samantha Smigel 2013

Honors Thesis Committee: Judy Britt, Ph.D.; Susanne Okey; and Evelyne Weeks

COE – Department of Curriculum and Pedagogy
(HONR 451)

Handwriting is a tool for communication often untaught that has effects on learning and long-term development for students of the future. Handwriting used to be needed in order to function in society, however, today that skill is no longer needed. New technology, current teaching methods and societal needs have caused handwriting to be overlooked in many school districts. Classrooms are overwhelmed with information and many schools are simply running out of time to teach cursive, therefore no longer making it a priority. Handwriting is a perceptual motor skill requiring higher cognitive thinking, something that most primary school children find difficult, yet it is still needed in the school curriculum and provides a stable foundation for students of the future. The questions to be addressed by my research are to examine the factors that have led to the demise of cursive writing in elementary schools. I will research the complex issues that have contributed to the decline of cursive handwriting. This will include my investigation into the factors that technology has played, along with societal needs. I will interview preservice teachers, those students in college preparing to become teachers, and try to understand where the importance for teaching handwriting started and ended. By the end of my research I want to have constructed a timeline of events to explain the demise of this needed skill. My methodology for this research will be to gather information from various primary and secondary literature review sources. I want to understand when cursive started to disappear from the curriculum and why.

Proper Valuation of Discounted Rate Adjustments in Multinational Corporations with Subsidiaries in Emerging Markets

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Sydney Smith 2012

Honors Thesis Committee: James D Schultz, Ph.D., Glenn Wood, Ph.D. and Brooke Stanley, Ph.D.

CBA – Department of Finance

In order to properly evaluate a Multinational Corporation (MNC), an analyst must consider the true economic and political risks associated with subsidiaries in emerging markets. Often times, analysts do not factor in these risks because the MNC's headquarters are located in stable countries; however, many of their subsidiaries' are located in politically and financially unstable regions. This factor could lead to potentially ignoring discounted rate adjustments for the subsidiaries and result in overvaluing the MNC. Using the three main approaches to reach the discounted cash flow (dividend discount model, weighted average cost of capital, and free cash flow to equity approach), subsidiaries in the developing markets could be shown as being overvalued. As a result, these MNC's will have an inflated rate of cash flow because they are not incorporating the external factors of the developing country(s). An analyst must also consider the following complications when comparing these models: varying income tax rates the MNC must file within its different operational countries, intra-company transactions that may have arranged or artificial prices, and unique MNC's that have no comparable benchmarking, on which to base their valuation methods. In addition, the study will compare analysts who use the discounted cash flow rates incorporating the economic and political fac-

tors to the analysts who omit the factors. This could potentially portray the gap of inconsistency that is synonymous when valuing MNCs. By not adjusting these discounted rates to consider the unstable factors associated with emerging markets, analysts could be overvaluing the MNCs, which would expose their portfolios to an uncalculated risk.

The Impact of New Outdoor Classroom on Student Appreciation of Nature

Presented at North American Association for Environmental Education Conference, October 2011, the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Holly A. Stuart 2012

Honor Thesis Committee: Marsha Bollinger, Ph.D.; Matthew Fike, Ph.D.; and Linda Pickett, Ph.D.

CAS – Department of Interdisciplinary Studies

Today's youth spend more time inside both at home and at school than did youth just a generation ago. As a result, children may develop nature-deficit disorder, exhibiting such symptoms as attention difficulties and lack of empathy for, and understanding of, complex ecosystems. Using the development of a new outdoor classroom at a Rock Hill, SC, elementary school, this project focuses on students' perceptions of nature as well as teachers' use of the new outdoor space. Students' drawings of the outdoor classroom solicited at four different times through the calendar year (January through December 2010) revealed that the average number of living items and details per drawing did not increase after time spent in the outdoor classroom, which implied that there was no enhanced appreciation of nature in the minds of the students. Surveys of teachers during the same timeframe indicate that although the teachers believed students would benefit from experience in the outdoors, limitations such as adherence to the curriculum map, damage to materials, student allergies, and bad weather prevented efficient use of the outdoor classroom. It is possible that professional teacher training in outdoor education and environmental education techniques could help the teachers use the outdoor classroom more effectively. Research indicates that teachers receiving such training are more likely to incorporate environmental topics into their classrooms and to use the outdoors more frequently. However, administrators facing budget cuts within the school system can find it difficult to obtain funding for outdoor education and environmental training programs for teachers. The No Child Left Inside Act (NCLIA) of 2011, which is a part of the Elementary and Secondary Education Act being reintroduced to the 112th Congress, could be one pathway toward providing financial support for these programs. If NCLIA passes, states could potentially acquire federal assistance for improving outdoor education and environmental literacy through the implementation of funding for teacher training workshops, thus addressing the problem of nature-deficit disorder among our nation's young people.

Literature Permutations: Traditional Literary Forms as Digital Narratives

Presented at the Sigma Tau Delta International Convention, March, 2012

Student: Edward A. Szeman 2012

Honor Thesis Committee: Leslie Bickford, Ph.D.; Jack DeRochi, Ph.D.; and Jane B. Smith, Ph.D.

CAS – Department of English

My honors thesis is an argument for video games' recognition as an artistic medium with merit equal to that of painting, writing, or performance arts. The argument is segmented into three primary parts, the first part being an examination of the multifaceted nature of the medium, locating the "intertextual" influences by other artists and artistic works, recognizing the advances video games have made to those art forms as a natural evolution of narrative

expression, and realizing the cultural and communal impacts of the medium. The second part serves to highlight the difference between the "medium" of art and the substance—or communicative intent—of a work, a medium being the means of communication while the substance of it holds the truly evocative potentiality of meaning. That is to say, I argue that video games, while their own unique artistic medium, should be included in the artistic category of literature. To further explain, *The Three Musketeers* by Alexandre Dumas remains literature whether it is in print or an audio book. The medium changes, the substance does not. This notion of medium and substance begets my ultimate focus which is the process of composing these digital narratives, a process which I argue is communal in the extreme and which I believe to be dialogic (involving authors, readers, and various texts), which I believe Bakhtin could not have possibly imagined when he coined the term. I end my paper with a call for more scholarship on video games, if not because the digital narrative is an art of the highest form, then because, as a multi-billion dollar industry and a primary means by which stories are spun today, it is deserving of no less attention than the very worst of literature, below which it has arguably been placed by literary critics for some time.

Media's Influence on Eating Disorders and Body Image Issues in the Adolescent Population

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Katherine Zanowski 2012

Honors Thesis Committee: Ameda Manetta, Ph.D.

CAS – Department of Social Work Department

(SCWK 330 – Manetta)

Eating disorders are a very serious and wide-spread problem affecting adolescents in the United States. A research literature review investigated many issues involving eating disorders, definitions and descriptions of eating disorders, laxatives and other weight control methods. From there, the research was expanded to include which genders and races were affected most by eating disorders and body image issues and the role the media plays in aggravating these issues. In researching the possible role the media plays in eating disorders, the central research question was derived: what impact does the media have on eating disorders? The methodology of this research was to use existing data from the 2007 Youth Risk Behavior Survey to analyze and explore if there was a relationship between media influence and eating disorders. The YRBS is a national survey of 14,041 high school students in the United States. A sub-sample of 6,821 was used in this research. Three questions were selected from the Youth Risk Behavior Survey, these addressed dieting, taking laxatives, and watching television. The finding showed that while less than 50% of students engaged in any of these behaviors; these dieting frequencies were higher than reported in prior studies. Chi-square analysis was conducted to see if there were any statistical associations between eating disorders and the media, and there were no statistically significant findings. Based on the statistical analysis, it was concluded that there was not a significant relationship between eating disorders and watching television. However, further research is necessary to determine if other types of media have an impact on eating disorders.

The Ethics of Technical Communication of Medical Products to Consumers

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Catherine Zende 2012

Honors Thesis Committee: Sarah Spring Ph.D.; Josephine Koster, Ph.D.;
and Guy Reel, Ph.D.

CAS – Department of English

Ethical technical communication is especially vital for two key areas: advertising and recalls. Companies specializing in medical products have certain legal and ethical responsibilities to fairly communicate the details of their products and services to the public. The purpose of my research was to determine how technical writers can convey accurate, appropriate information that benefits both consumers and companies. To better understand the ethical implications of technical writing, I studied specific examples of how technical writing is used in marketing that targets consumers. For each case study, I rhetorically analyzed the subject matter, audience, medium, context, clarity and completeness of the communication. I also examined published materials (including government documents and independent studies) in order to define ethical technical writing and the benefits of truthful communication. I evaluated products charged with false advertising in terms of the honesty and accuracy of their marketing. With recalls, I evaluated how the company handled the situation in terms of timeliness, effectiveness and honesty. I concluded that the best and most ethical technical communication clearly conveys all important information to the public without making false promises or concealing important information. This effective communication purposefully avoids ambiguity, confusion or doubt that can lead to lawsuits and consumer complaints. Being truthful and forthcoming about realistic results, possible side effects and research studies or trials can help writers avoid providing false advertising; being honest, clear and vigilant about recalling medical products can help companies save their reputation during a period of doubt and fear. While vague technical writing is more convenient and appealing for marketing, honesty and directness in communication better serves companies and consumers.

Meeting Abstracts

Ulysses, Shakespeare, and Dasein

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Patrick Bryant 2012

Faculty Member: Marguerite Quintelli-Neary, Ph.D.

CAS – Department of English

Focusing on the Telemachiad episodes of James Joyce's *Ulysses*, this paper seeks to make a comparison between Stephen Dedalus's struggle with self-significance and Martin Heidegger's concept of "Dasein"—from his work *Being and Time*. It also suggests that Joyce pulls from the works of Shakespeare—specifically Theseus's speech on the imagination (*A Midsummer Night's Dream*: act 5, scene 1) and Hamlet (in general)—in order to clarify Heidegger's concept and to illuminate Stephen's progression as an individual: away from inaction, and towards Heidegger's notion of "anticipatory resoluteness," a being-towards death. Previous scholars have discussed the linguistic "veil of signs," which Stephen attempts to "read" in the Proteus episode (Brivic); the notion of language as a defense mechanism against the uncertainty of being (Stanier); and the meta-realm of decision making in Hamlet and Joyce (Eiland). Following these scholars, I seek to explain the process of the self's (Dasein's) formation, through a deconstruction of the etymological web (enlightened by Theseus's speech) and a relation of that web to the world of Others, in which Dasein is inherently involved. Ultimately, I suggest that Stephen gains resolve from his altercation with the British soldier and his interactions with Leopold Bloom; and, if the novel were to continue beyond the Penelope episode, then we would perhaps see him progressing beyond the realm of the meta and into a world of action. I close with a brief, creative projection of Stephen's would-be thoughts, imitating Joyce's style, but claim that the author's ending the novel with Penelope is for the best, because it implies that Stephen has indeed moved beyond the realm of rumination and into an active mode of being-in-the-world.

Stephen Dedalus's Quest for Artistic Freedom and Autonomy in an Occupied Country: Religion and Language as a Revealer of the Impact of Colonization in *A Portrait of the Artist as a Young Man*

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Ashley Mellon 2013

Faculty Member: Marguerite Quintelli-Neary, Ph.D.

CAS – Department of English

After close examination of James Joyce's work, it is evident that *A Portrait of the Artist as a Young Man* is a perfect candidate for postcolonialism criticism; however, it is actually surprising how recent the concept of a political Joyce is. Leonard Orr notes in *Joyce, Imperialism, and Postcolonialism*, that "traditional Joyce critics of the 1950s through the 1970s treated Joyce as either entirely disinteresting in politics or having only a superficial understanding matters outside of literature and aesthetics. It was not until the 1990s, with the paradigm shift in critical theory to new historicism, cultural, and postcolonial studies,

that what had previously been denied or ignored became apparent" (5). Later literary critics have allowed for the aspects of postcolonialism and nationalism to be much more apparent in Joyce criticism; as a result, this criticism illuminates the underlying political meaning of the text, such as in *A Portrait of the Artist as a Young Man*. While most critics, such as Leonard Orr, claim that the postcolonial elements of *A Portrait of the Artist as a Young Man* come from the statements James Joyce made in his personal letters and correspondences, I will argue that Joyce also overtly and directly addresses within the text, *A Portrait of the Artist as a Young Man* the impact the colonizer, England, had on the colonized, Ireland. I will further argue that Stephen Dedalus expresses his need for autonomy from the British colonizers explicitly through his choice of Catholic rather than Protestant faith and his emergent reaction to the English language. Stephen recognizes that even the language of the Irish derives from the British. *A Portrait of the Artist as a Young Man* should not be excluded from postcolonial criticism because the novel focuses on how Stephen reacts to the occupier, England; searching for autonomy, he rejects both the religion and language of the British and attempts to detach himself from a hybrid identity, which draws attention to the duality of England and Ireland.

Digital Evolution of Narratives: Awakening Traditional Narrative Forms Through New Media

Presented at the Sigma Tau Delta International Convention, March, 2012

Student: Edward A. Szeman 2012

Honor Thesis Committee: Leslie Bickford, Ph.D.; Jack DeRochi, Ph.D.;
and Jane B. Smith, Ph.D.

CAS – Department of English

The first *movement* of my honor's thesis, this paper seeks to address the evolution of narrative forms as they relate to video games, specifically as they relate to video games through more traditional, print-narrative forms. Both primary and secondary sources informing the narrative structures of video games were utilized; and the base argument for the intimate connection between traditional and digital narratives is grounded both in reader response philosophy and inter-medium criticism. I first address traditional narrative modes as they appear in video games (that is the form and integration of those narrative modes): perspective (ie: first, second, third), voice (stream-of-consciousness, unreliable, omniscient, subjective, etc.), and narrative tense. I then proceed to detail the ways in which video games advance such traditional forms, often through the inclusion of medium-specific elements that traditional print narratives cannot access. Finally, I describe new narrative modes such as cut-scenes and active gamer-development of narratives that are wholly unique to video games in the late 20th and early 21st centuries. The significance of these shifts in narrative structure from traditional literary forms to the contemporary video game is that, as critics and historians have long tracked shifts in the form of the spoken or written narratives across time, so must we continue to do so with the inclusion of video games, potentially one of the most immersive and engaging means of narrative conveyance in modern times.

Edna Pontellier vs. the Narrator vs. Comprehension: A Study of the Misuse of Language in Kate Chopin's *The Awakening*

Presented at Sigma Tau Delta International Convention: Reawaken, 2012

Student: Crystal Knappenberger 2012

Faculty Mentor: Leslie Bickford, Ph.D.

CAS – Department of English

(ENGL 300 – Bickford)

Kate Chopin uses binaries and a creative, confusing style in her story *The Awakening*. Edna Pontellier, the main character in Chopin's story, experiences a sexual awakening and is confused by it, as she demonstrates with her word choice and actions. I argue that Chopin did not give Edna room in the story for growth and did not allow her to articulate her feelings because she does not know why or what she is feeling. She is unable to express her new feelings because, as Patricia Yaeger, author of "A Language Which Nobody Understood": Emancipatory Strategies in *The Awakening*, states "Edna lacks an alternative register of language to describe her tumultuous feelings" (206). With more help from Gerri Brightwell, Cynthia Griffin Wolff, and Marion Murihead and with textual evidence from Chopin's story, I demonstrate how Edna cannot grow in her awakening because Chopin did not allow her to with her lack of knowledge in the patriarchal community in which she was living. I express this argument with textual evidence and flipping binaries such as spoken/written language, spoken/unspoken words, and the word choice Chopin uses to describe Edna's emotions.

The Shortest of Temporary Deaths: The Politics of Waking Up

Presented at the Annual Meeting of the Georgia Political Science Association, November, 2011

Student: Andrew Davis 2011

Faculty Mentor: Timothy Boylan, Ph.D. and Michael Lipscomb, Ph.D.

CAS – Department of Political Science

(PLSC 490 – Boylan and Lipscomb)

This project centers on the subjectivity forming, and as such, necessarily restricting boundaries transformed by the emergence and continuation of a heteronomously structured work-period. Thus, it explores subjectivity, but also, tangentially related themes such as authority, obedience, resignation, power, autonomy, and freedom. This project will ultimately seek to radically re-imagine these integral political concepts of modernity along the theoretical axis provided, that being a focus on criticism and deconstruction, through the interrogation of the ideas of different political thinkers, along with an ultimate objective of normative clarification. In short, I am asking how we should conceptualize these relations given the knowledge of the limiting scope of coercive work scheduling, and even further how such demands on our time prevent us from experiencing a truly autonomous, and perhaps more essentially human, condition in regards to our time. This project is structured as to provide a narrative of the evolution of the work-day, particularly in regards to the emergence of industrial capitalism, but also regarding the obligatory work structures found in pre-industrial and command economies world-wide. It will then, through criticism, provide a trajectory for a re-organization of work-scheduling in a more normatively noble manner, with respect to the concepts affected by the pathological and alienating structures of coercive demands on our time.

The Protein C System in Prostate Cancer

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Students: Allison Stahl 2012, **Chantelle VanNostern** 2012, and **Selah Fredrickson** 2011

Faculty Mentor: Laura Glasscock, Ph.D.

CAS – Department of Biology

Prostate cancer (CaP) is the second leading cause of death in men in the United States (Jemal 2011). We investigated the expression of two transmembrane receptors, thrombomodulin (TM) and endothelial cell protein C receptor (EPCR), thought to be involved in CaP metastasis. TM and EPCR are normally expressed by endothelial cells in the blood vessel where they function as anti-coagulants. The localization and function of these receptors on endothelial cells is well-documented. Our previous studies have shown that TM and EPCR are also expressed by CaP cells where they regulate proliferation and invasion by these cells. Our goal was to localize TM and EPCR on two CaP cell lines, PC-3 and DU-145. Comparison of the localization of TM and EPCR on these tumor cells to endothelial cells will allow further insight into what role these proteins play in regulating CaP progression. We also investigated how TM on PC-3 and DU-145's regulates adhesion of tumor cells to each other. We determined that the localization of TM and EPCR on PC-3 and DU-145's is similar to that reported for endothelial cells. In fact, this is the first investigation of EPCR's expression by tumor cells. We also determined that expression of TM by DU-145 cells affects the ability of these cells to adhere to each other. We are currently determining if TM and EPCR are co-localized on PC-3 and DU-145 cells and if these receptors co-localize with other well-known cell adhesion molecules such as the cadherins.

Circadian Synchronization of the Cell Cycle in *Aeolosoma* (Annelida)

Presented at the 2012 SC-INBRE Scientific Symposium and at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the South Carolina IDeA Networks of Biomedical Research Excellence Grant from NIH

Students: Emily Bowie 2012 and **Courtney Patenaude** 2012

Faculty Mentor: Julian Smith III, Ph.D.

CAS – Department of Biology

(BIOL 471/472 - Smith)

In many organisms, the cell cycle is at least partly synchronized to a circadian rhythm. At least two possible hypotheses have emerged to explain this. First, consigning sensitive portions of the cell cycle to periods of low aerobic activity may be one way of protecting the cell's genetic material. A second hypothesis is that consignment of the sensitive portions of the cell cycle to the scotophase may be a way of reducing light-mediated DNA damage. In order to investigate these hypotheses further, we determined whether the cell cycle in *Aeolosoma* (a small, transparent annelid common in freshwater habitats) contains a circadian rhythm. If so, it might be expected that the stem cells present in *Aeolosoma* will divide more frequently at night than during the day. *Aeolosoma* reproduces prolifically by asexual fission in culture, and has proven useful in our lab for studying stem cells and the mitotic cycle. *Aeolosoma* were cultured under a clock-shifted photoperiod of 12L/12D; with artificial noon being around 5:00PM. After the *Aeolosoma* acclimated to this new diurnal rhythm, they were killed by freezing, which provided a way to preserve any cells undergoing mitoses at the time of death. One group was frozen at relative 3:00AM (dark group) and the second group was frozen at relative 3:00PM (light group). Mitotic cells were labeled with anti-phosH3, the nuclei of the cells were stained with Hoechst 33342, and we incorporated the

use of EdU labeling to observe cells currently sustaining S-phase at the time of death. Cell counts were taken using confocal-laser-scanning microscope stacks. Mitoses were significantly (approximately three-fold) higher in the dark group. These results show that the stem cells are more likely to undergo mitosis at night than during the day. Interestingly, in a group of animals killed one hour after lights-on (6:00AM) showed a significant amount of cells currently in S-phase. These cells were found in the gut, along fission planes, and in the posterior region of the animal. Future studies will include more samples at different times to find the time of maximal mitosis, and continuing the use of EdU labeling to compare S-phase cell amounts at different times.

Young Adults' Perception of the Self and Their Parenting Relationships

Presented at the 17th Annual SAEOPP McNair/SSS Scholars Research Conference June 2011 and the Annual Meeting of the Southeastern Psychological Association, February, 2012

Student: Katheryn Dixson 2012 (McNair Scholar)

Faculty Mentor: Eurnestine Brown, Ph.D.

CAS – Department of Psychology

In today's society diverse family units influence family dynamics and the complexity of parenting practices. Children may have biological or non-biological parents. Parents may be single, married, divorced or widowed. Families may be headed by parents with varied sexual orientation. Family members may live in the same household or multiple households. For most families, the responsibility of parenting begins at infancy and extends throughout adulthood. Ideally, parents guide their children through adolescence to prepare them to become adults. Parenting is crucial to the development and understanding of child outcomes. The evolution of ideas and behaviors of parenting are dependent on the parent-child relationship. These changes in parenting are due to gender, age, temperament, and behavior of the parent and child (Smith, 2010). Several factors influence parenting style, i.e. age, gender, socioeconomic status (SES), culture, marital status, and sexuality. The current study focuses on examining relationships young adults have with their parents/primary caregivers concerning factors such as support, involvement, control, and warmth. Pilot data has been collected on 50 young adults. Data collection is ongoing with an anticipated end total sample between 100 - 150 participants. Participant responses to the Perceptions of Parenting Survey (POPs) (Robbins, 1994) and the Current Thoughts Scale (Heatherton & Polivy, 1991) will be examined. College students will be asked to provide a retrospective account of parenting experienced. To appreciate family diversity, participants were able to self-define their parents (i.e., mother, father, grandparent, etc.). The college student version of the POPs contains 42 questions (8 are demographic). Most responses are on a 7-point Likert scale (1 not true at all; 7 very true). The POPs will measure participants' agreement with statements regarding their relationship with their primary caregivers. The Current Thoughts Scale, a 20 question scale will measure self-esteem. Participants' responses will index self-esteem, bodily perception, performance, and attractiveness. A correlation matrix will be used to determine relationships between self-esteem and perceptions of parents. Pilot data on the 50 young adults (mean age of 20.9 (SD=2.345) revealed no significant difference between self-esteem and mother autonomy support, $r(48) = .204$, $p > .05$ nor self-esteem and father involvement, $r(48) = .022$, $p > .05$. But results did reveal a significant difference between mother warmth and mother autonomy support, $r(48) = .838$, $p < .05$ and father warmth and father autonomy support, $r(48) = .920$, $p < .05$. Mothers and fathers that were perceived as warm often times were also seen as supportive. Living arrangements and self-esteem scores varied and will be examined further. We expect complex relationships to be revealed between our key variables as the sample size increases.

Dr. Jekyll and Mr. Hyde: The Duality of the Relationship Between Psychological Entitlement and Extra-Role Work Behavior

Presented at the 17th Annual SAEOPP McNair/SSS Conference, June, 2011

Student: Charlotte Ervin-Brown 2011 (McNair Scholar)

Faculty Mentor: Malayka Klimchak, Ph.D.

CBA – Department of Management

This research project will examine the direct relationship between psychological entitlement and extra-role work behaviors. To gain a more nuanced understanding of this relationship, I will also consider how narcissistic personality and conscientiousness moderate the relationship between psychological entitlement and extra-role work behaviors. I expect that these variables will have contrasting effects when combined with psychological entitlement.

Sex in Music Videos: Changes Across Time and Genre

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Students: Kenithea Hodges 2013, Jessica Thompson 2012, Crystal Wilson 2012, Kristen Belk 2012, Felicia Taylor 2012, Terran Wooton 2012, Steven Sanders 2012, Caroline Novellino 2012, AnnaBrook Anderson 2012, and Alicia Owens 2012

Faculty Mentor: Darren R. Ritzer, Ph.D.

CAS – Department of Psychology

(PSYC 302 – Ritzer)

Sexuality plays a large role in American music videos. The sexual content of music videos ranges from alluring clothing to overt simulated sexual acts (Brown, 2002; Zhang, Miller & Harrison, 2008; Turner 2011). The high incidence of sexual imagery in music videos may have a negative impact on society. Gow (1996) concluded that music videos create an atmosphere of objectification of women. Exposure to sexual music videos has been linked to greater sexual permissiveness, greater objectification of women (Zhang, Miller, & Harrison, 2008) and greater acceptance of sexual violence (Turner, 2011). Researchers hypothesized that music videos would be increasingly sexual over the decades, hip-hop videos would have consistently high amounts of sexual content over time, and pop videos would increase in sexual content over time. Thus, we hypothesized a main effect for decade and an interaction between genre and decade. The most popular music videos from the 1980s, 1990s, and 2000s were gathered from MTV's Video Music Awards list (mtv.com) and Yahoo! Music Big Hits (new.music.yahoo.com). Videos were then found on YouTube.com for viewing. The current study focused on two major genres: hip-hop and pop. To record the sexual content of music videos, the researchers used a modified version of the checklist of sexual content from Andsager and Roe (2003). A total of 120 music videos were chosen and rated by 10 raters. Raters viewed the videos with the sound muted. A random 10% of the videos were rated by two different raters to allow for a measure of inter-rater agreement. The hypothesis of increasing sexuality over time was supported ($F(2,114) = 13.17$, $p < .05$). A Tukey post-hoc test revealed that there was a significant difference between the sexual content in videos of the 1980s compared to the 2000s. The hypothesis that there would be an interaction between genre and decade was not supported ($F(2, 114) = .777$, ns). Also, there was no significant main effect for genre. Hip-hop videos and pop videos showed the same amount of sexual content. Given the potential negative impact of watching sexually charged videos, the significant increase in sexual content of music videos over time is troubling.

Montesquieu & Cadalso: 18th Century European Philosophers Predict the Future

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, SC, April, 2012*

Student: Ana Smith 2012

Faculty Mentor: Cecile Leung, Ph.D.

CAS – World Languages and Cultures

(FREN 402 – Leung)

The goal of this abstract is to explain how two societies have not changed their attitudes towards one another in the course of the past 200 years. The eighteenth century French writer Montesquieu and the Spanish writer Cadalso both wrote critiques and fictitious stories concerning their cultures revealing the attitude and racist spirit of their people. They placed the other purposely and satirically into two main groups — the “West” and the “Arabs” (Islam) — to emphasize current irrational thoughts. In the eighteenth century, the Church, the Age of Enlightenment and revolutionary ideas had a great transformational influence on society. This is especially true for Western cultures like France, Spain and the New World. Yet, in spite of this progress they aspired to, these same attitudes were passed down through the generations and these cultures still function under the same stereotypes and misperceptions of each other. Today in Western cultures people can speak publicly about politics and religion without consequence or reprimand. Newspapers offer opinion columns and television talk show hosts voice their views. People are freer to travel, to study, and to work in practically any place in the world more than any other time in history, but general stereotypes and prejudices remain the same. This paper will examine the events of September 11, 2001 and the extent of its effects. It will also take the comments and attitudes from the eighteenth century and compare them with today's attitudes. Statistics will show whether or not these cultures have become more tolerant or respectful of each other. The source of this mutual conflict can be identified through the differences in their culture and religion.

Chou Iroppoi: Sexual content in American vs. Japanese music videos

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Kenithea Hodges 2013

Faculty Mentor: Darren R. Ritzer, Ph.D.

CAS – Department of Psychology

(PSYC 472 – Ritzer)

A large amount of sexual content can be found in American music videos. Copious amounts of sexual content may negatively affect society. It has been shown that exposure to sexual content in music videos can cause greater promiscuity in adolescents (Wingood, 2003) and that the depiction of women in sexual videos can lead to greater objectification of women (Peter & Valkenburg, 2007; Ward 2002; Ward & Friedman, 2006). Not only is there a large amount of sexual content in music videos but the amount of sexual content is increasing with time (Hodges et. al, 2011). The question then arises on whether or not it is only American music videos with high sexual content or if sexual content is uniform across various countries. This study compared the amount of sexual content that could be found in American music videos to sexual content found in Japanese music videos. It was hypothesized that there would be a significantly higher amount of sexual content found in the American music videos versus the Japanese music videos. This study was conducted by gathering the top 100 songs for the week of September 12-17 for each country using the Billboard Top 100 for the American music videos (billboard.com/charts/hot-100#) and using the Oricon Style ranking

chart for the Japanese music videos (oricon.co.jp/rank). After removing 20 songs from each country that did not have a corresponding music video the remaining 80 videos were viewed with a total of 160 videos watched. The videos were rated using a modified version of the sexual content checklist from Hodges et. al (2011). There was a significant difference for the amount of sexual content found in American music videos ($M=4.09$, $SD=3.19$) versus the sexual content found in Japanese music videos ($M=1.79$, $SD=2.66$) with the conditions of $t(158)=4.95$, $p<.05$. Therefore the hypothesis was supported and the null was rejected. This shows that sexual content in music videos is not the same in all countries. America had a significantly higher amount of sexual content than Japan. This brings about the possibility that songs do not need sexual videos in order to be popular.

Vaults, Caverns, and Labyrinths: Psychosexuality in Matthew Lewis's *The Monk*

Presented at 17th Annual SAEOPP McNair/SSS Scholars Research Conference, June, 2011

Supported by the Ronald E. McNair Scholars Program

Student: Cayla Eagon 2012 (McNair Scholar)

Faculty Mentor: Jack DeRochi, Ph.D.

CAS – Department of English

(MCNR 300 -Fortner-Wood)

The purpose of this research is to examine Matthew Lewis's Gothic novel *The Monk* from a psychoanalytic perspective. By examining Ambrosio and other characters in terms of Freud's concepts of id, ego, and superego, Ambrosio is unveiled not simply as a religious figure turned murderer and rapist, but rather as a psychosexually complex character whose decisions convey the fragility of the human condition. The text's conventions of masculine and feminine Gothic as well as much of its symbolism further support such a reading.

Relating Rousseau on “L'inégalité” to Today's Social Wars

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Steve Rivard 2014

Faculty Mentor: Cecile Leung, Ph.D.

CAS – World Languages and Cultures

(FREN 402 – Lueng)

In Rousseau's Origin of Inequality speech written in 1755, he thoroughly explained that inequality started with ownership of land and tools. The term property ownership dramatically changed over the centuries. Power was determined by how much an individual owned. Evolution cannot come without inequality. Humankind was destined to evolve and when property ownership occurred, it was the beginning of the first signs of inequality. As progress continues, some humans adapt to change and some others fall behind, leading to the oppression of the weak. The structure of society established in the eighteenth century forced people to conform to the rules meant for the individual's wealth and pleasure. While the French Revolution suggests a thorough case in point of the wealth distribution in France during the eighteenth century, the United States' wealth distribution among its classes in the twenty first century will offer good subject matter to support Rousseau's position on inequality. Today a person's most valuable possession is their home. In the twenty first century, the population's money and properties are more vulnerable to seizure. The current system deludes people into a false sense of security by giving them the false impression that all people are equal. This paper seeks to contrast the differences of property ownership in

past societies to modern societies through Rousseau's ideas. Statistics will be used to explain today's wealth and its distribution across the United States. These statistics will demonstrate the theories concerning the origin of inequalities that Rousseau predicted over two hundred years ago.

Undergraduates' Attitudes Toward Sexual Orientation and Age

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: April Chavis 2012, Meghan Glanville 2013, and Sabrina Blue 2013

Faculty Mentor: Matthew Hayes, Ph.D.

CAS – Department of Psychology

(PSYC 302 - Hayes)

Previous studies on attitudes toward homosexual individuals largely found negative views expressed from society (Herek, 1988). Another group that faces great prejudice is the elderly (Wurtele, 2009), specifically relating to older individuals and their sexuality (Allen, Petro, & Phillips, 2008). The present study investigated whether older homosexuals face considerably more prejudice than older heterosexual adults encounter. This study used a 3 × 3 design with Sexual Orientation (Lesbian, Gay, Heterosexual) and Target Age (25, 50, 75) as our between subject variables. Participants first read a vignette that specified the age (25, 50, 75) and sexual orientation (Lesbian, Gay, Heterosexual) of an individual. They then completed the Attitudes toward Lesbians and Gay Men (ATLG) scale (Herek, 1988) which measured the attitudes held by participants. We hypothesized that college students would score higher on the ATLG Scale reflecting more negative attitudes regarding older homosexuals than younger heterosexuals. We also hypothesized that Gay men would be viewed more unfavorably than Lesbians and Heterosexuals. We predicted there would be an interaction between Target Age and Sexual Orientation with college students having more negative views toward the vignettes with homosexuals in the older age groups (50, 75) and with heterosexuals not being viewed unfavorably at any target age. Responses from 296 undergraduate students (age 18-25) revealed that Lesbians were viewed more positively than Heterosexuals and Gay men, which were equal in favorability. Even though our Target Age variable revealed no significant main effects or interaction, the significant findings for Sexual Orientation may be useful in assessing the changing attitudes toward homosexuals among undergraduates, as previous research found both lesbians and gay men were viewed less favorably than heterosexuals, with gay men receiving the most negative responses from participants. Our findings are consistent with recent developments in intergroup contact theory and research (Pettigrew, Tropp, Wagner, & Christ, 2011), which have reported positive outcomes for homosexuals, partially due to vicarious contact through popular media which indirectly reduces prejudice by decreasing anxiety and increasing empathy for homosexual individuals.

Voltaire's *Candide*, ou l'Optimisme in the 21st Century: Who is Candide Today?

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Leah Keith 2012

Faculty Mentor: Cecile Leung, Ph.D.

CAS – World Languages and Cultures

(FREN 402 - Leung)

Voltaire's penultimate work *Candide*, ou l'optimisme (1759) was a tool in its time, a means by which Voltaire avoided harsh censorship through his story-telling style. Through the adventures of the naïve protagonist Candide, Voltaire relayed his criticisms on nearly all parts

of society in the eighteenth century. Whether it was the Pope or a reigning philosophy, like Leibniz's Optimism, no one was free of Voltaire's wrath. Candide's travels through the story relay to the reader the meaning underneath; Voltaire left nothing to be taken at face value. The question is, how can Candide be relevant today? We can easily find similarities between Voltaire's social commentary and what we experience every day, such as the atrocities of war. Can the same story of Candide stand the test of time and enlighten contemporary society with the same powerful message? Many have tried to imitate or derivate from the original work, like Leonard Bernstein's Broadway operetta, but few have succeeded at preserving Voltaire's vision. Even though the play used the storytelling style, Voltaire's satire was transformed into mere farce. The value in every piece of art is its message, and Voltaire was brilliant at using his chef d'oeuvre to convey the truth.

Anxiety Resulting from Differences in Real vs. Idealized Selves

*Presented at the Annual Meeting of the Southeastern Psychological Association,
February, 2012*

Student: Vitta Clawson 2013 (McNair Scholar)

Faculty Mentor: Merry J. Sleigh, Ph.D.

CAS – Department of Psychology

The real self represents the individual's knowledge about himself (Zentner & Renaud, 2007). The idealized self represents how individuals desire to be (Farmer & Dyne, 2010). When these two differ, people around the world experience negative outcomes (e.g., Lynch & LaGuardia, 2009; Matsuoka et al, 2006; Yang & Chen, 2010). We examined young adults' perceptions of their real and ideal selves, the anxiety created by the difference between the two, and possible predictors for that anxiety level. Participants (n = 125) responded to an online survey assessing their real selves, ideal selves, and anxiety related to the difference between the two. The survey assessed perceptions of relationships, intelligence, personality, and physique, as well as personality variables such as introversion, sensitivity to criticism and self-monitoring. Results revealed that women rated themselves similarly to men, except they perceived themselves as more attractive and more romantically successful. Similarly, anxiety levels did not differ between genders, except that women were more anxious about their intelligence discrepancy. However, women's ideals tended to be grander than men's ideals; they wished much more for themselves than did men. African-Americans tended to rate their real selves more positively than did Caucasians, suggesting more confidence in their real selves. African-Americans also expressed less anxiety about differences between their real and ideal selves than did Caucasians. The difference between real and ideal selves was not a strong predictor of anxiety level. Smaller differences in intelligence or romantic attractiveness mattered a lot, whereas bigger differences in athletic ability did not lead to anxiety.

So You Think You Know: Undergraduates' Expectations and Knowledge Related to Future Plans

*Presented at the Annual Meeting of the Southeastern Psychological Association, February,
2012 and the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Vitta Clawson 2013 (McNair Scholar)

Faculty Mentor: Merry J. Sleigh, Ph.D.

CAS – Department of Psychology

We examined whether undergraduates' knowledge about particular outcomes predicted the desirability of those outcomes. Ninety undergraduates responded to a survey that assessed their future relationship, parenting, and career plans, as well as their knowledge about each

of these domains. We calculated knowledge scores for each domain, compared gender with t-tests, and examined relations among variables with correlations ($p < .05$ for all data reported below). Both men and women believe that their friendships with their opposite sex and same sex friends will be the same in the future as they are now, maybe even better. This finding held true regardless of participants' career expectations or expected number of children. Men and women also had similar ideas about when they planned to marry. However, women were more willing to get divorced, a willingness that men underestimated. Similarly, men believed that the husband was the least likely person to be happy in the marriage, while women thought there was an equal chance that the husband, wife or both partners would be happiest. Participants who were religious, planned to make a lot of money, or valued raising a family were least willing to get divorced. Despite these differences in expectations, all participants shared a similar level of knowledge about marriage patterns and divorce rates. We found few gender differences related to parenting expectations. Young adults did not seem to have a clear vision of parenting, and in general, were inaccurate about the costs and responsibility associated with raising children. Growing up poor predicted people perceiving parenting as expensive, while being religious was related to people believing parenting was inexpensive, suggesting that personal experience influences expectations.

Down the Rabbit Hole: The Teachers of the CAH Charter School

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012 and the South Carolina
Anthropology Student Conference, Clemson University, April, 2012*

Student: Christine da Rosa 2012

Faculty Mentor: Sarah Quick, Ph.D.

CAS – Department of Anthropology

(ANTH 341 - Quick)

The Children's Attention Home is an emergency and long term shelter for children who are removed from their homes due to neglect, abandonment, and/or abuse. Many of the children at the Home are unable to attend public school, often due to emotional or physical trauma. Six years ago, a charter school was founded by the Children's Attention Home named the Children's Attention Home (CAH) Charter School. With six faculty members, its goal is, "to provide a safe and individualized educational experience that stimulates academic achievement and personal empowerment for abused, neglected or abandoned children," (Children's). A noble statement, but how do six people, three being volunteers, 'provide a safe and individualized educational experience' to the 6,000 traumatized children who have come and left the school? My paper is based on an ethnographic research project undertaken during the Fall 2011 semester. In this research I investigated two main questions: how do they do it? and why do they do it? I first examine "the how" of the school through its structure, including formal and informal terminology, rules, and teacher certification. I then explore the teachers' motivations, their personal attachments and stress.

Perceptions of E-books Versus Traditional Books

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: Elizabeth Barker 2013, **Riketa Williams** 2013, **Angelique Carswell** 2013,
and **Trisha Honeycutt** 2012

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

(PSYC 302 – Sleight)

Technological devices are on the rise, many replacing older and more traditional mediums. For example, the purchase of e-books over traditional books has become more predominant in consumer choices. E-book purchases in 2011 have increased by 202.3% and traditional books have decreased by 34.4% from 2010 (Sporkin, 2011). The current study examined preferences of e-books over traditional books. Participants completed a 50-question survey created by the research group. The questions assessed participants experience with e-books and traditional books, as well as their reading habits. Participants were 94 students with a mean age of 21.05 (SD = 3.68). Results revealed that the majority of our participants had never read an e-book. We found that of the people who read an e-book, 35% were men. Participants who had read an e-book reported having spent more money purchasing books, $t(81) = 2.42$, $p = .018$, were less likely to agree that reading is one of their favorite things to do, $t(91) = 1.96$, $p = .05$, and were more likely to agree that they read often for fun, $t(90) = 2.93$, $p = .004$. Participants were most likely to use e-books for entertainment (73%), followed by for classwork (35%), studying (23%) and work (0%). The more participants reported enjoying e-books, the more they agreed they were a faster reader, $r = .55$, $p < .01$, and the more books participants had in their homes growing up, $r = .42$, $p < .05$. No other variables predicted enjoyment of e-books. In general, our participants, although aware of e-books, preferred traditional reading materials.

Factors That Influence Emotional Interpretations of Ambiguous Text Messages

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Tiffany Piccolo 2012

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

(PSYC 471/472 - Sleight)

The purpose of the study was to examine participants' emotional interpretations of text messages that were discerned ambiguous. Participants were 124 young adults. Participants were given a 54 question survey addressing their emotional interpretation of 14 short phrases, their texting behavior and beliefs about the clarity of texting. Participants were divided into three different conditions. Condition 1 received 14 grammatically correct short phrases, condition 2 received 14 text-style phrases, and condition 3 received 14 text-style phrases with the addition of emoticons. Participants were asked to assess and rank the emotional content of the phrases. The response options included 4 out of Eckman's 6 original emotions with the exclusion of fear and surprise. The response options also included sarcasm, which is not considered a standard emotion but is commonly used as a communicative strategy for young adults. We compared the three conditions with an ANOVA. Participants in condition 3, that received 14 text-style phrases with the addition of emoticons, were significantly less likely to give the emotional response of distress than the other two conditions, $F(2, 113) = 8.22$, $p = .000$. Similarly, participants who believed they were attractive were significantly less likely to give the emotional response of distress, $r = .28$, $p = .01$. Participants who reported having

high self-esteem were significantly less likely to give the emotional response of distress, $r = .30$, $p < .01$, and more likely to give the emotional response of sarcasm, $r = .34$, $p < .01$. Participants who believed they could easily relate to their peer were significantly less likely to give the emotional response of distress, $r = .20$, $p = .033$, and significantly more likely to give the emotional response of interest, $r = .19$, $p < .05$. Age, GPA, sympathy, self-report of intelligence, and self-monitoring did not predict emotional reactions to messages. Women reported using emoticons significantly more than men, $t(116) = -4.20$, $p = .001$. Men and women had similar patterns of texting, interpreting messages, being misunderstood when texting, and misunderstanding texts. These findings may be useful to professionals who want to gain a better understanding of how texting impacts communication.

A Young Man Getting Older, Going Westward

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Edward Szeman 2012

Faculty Mentor: Evelyne Weeks

CAS – Department of English

(WRIT 516 and WRIT 510 – Weeks)

The poems in this collection, “Pennies and Towns,” “State Recurrence Theorem,” “On Getting Older and Learning Things,” and “Placeness,” were composed either in the Writing 510 or 516 workshop courses at Winthrop or were composed independent of course work during the 2011 fall semester. Extensive revisions were conducted both with student poets and faculty members over a period of months. Though the styles and forms of the poems vary, it was my intent to tie them together with a theme of maturation and growth (as they relate both to inner growth and to more physical, directional growth). Many of the poems are concerned with the notion of “home” or having a place to call one’s own. They tend to follow the growth of a young boy into a young man, and attempt to reveal how one might deal with the challenges inherent to different life stages. It is my hope that the ordering of the poems reflects not only the growth of the individual in question (the speaker of the poems), but also an increase in self-awareness and contentment. In composing the poems I paid special attention to the conversational style I attempted to craft in all but the more experimental “Pennies and Towns.” I also attempted to maintain the utmost elements of truth; thus my images were crafted to ensure a directness of poetics and aesthetics, which I hope the lines achieve both in sound and in meaning.

Predictors of Attitudes about Dating, Marriage, and Divorce

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: Phillip Foltz 2013, **Conner Boyd** 2012, and **Renee Gary** 2011

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

(PSYC 302 -Sleight)

This study assessed factors that predict young adults’ attitudes toward dating, marriage, and divorce. Participants were 80 adults who responded to a 47 question online survey. The survey included questions taken or adapted from the National Fatherhood Initiative (2005) to assess attitudes toward dating, marriage, and divorce. Results revealed that age and family income were poor predictors of attitude. In contrast, religious involvement was a powerful predictor. For example, the more participants reported attending religious services, the less important they believed that the attractiveness of the two partners was in relationship success,

$r = .32$, $p < .01$, and the fewer months they felt people need to date before they marry, $r = -.32$, $p < .05$. Religious participants rated financial stability as a less important factor in marital success, $r = .26$, $p < .05$ and agreed that they plan to be married for life, $r = .31$, $p < .01$. The more religious the participants, the more important they felt it was for a woman to make her husband a top priority in the home, $r = -.38$, $p < .01$, and the more they agreed that fathers are as important as mothers for the development of children, $r = .28$, $p < .05$. The more participants reported attending religious services, the more they believed that divorce is a serious national problem, $r = .41$, $p < .01$. Compared to women, men were more likely to agree that most married couples they know have happy, healthy marriages, $t(78) = 2.10$, $p = .039$, believed that women should make children more of a priority, $t(78) = -2.02$, $p = .047$, believed that couples should date for a longer time before getting married, $t(75) = 2.48$, $p = .015$, and were less likely to agree that divorced parents can parent as effectively as married ones, $t(77) = -2.49$, $p = .015$. In sum, religion and gender emerged as predictive factors. We expected religious participants to express more conservative views toward relationships; however, our participants expressed agreement with the most conservative viewpoints. Men in our survey expressed more conservative attitudes than did women. These findings may lend support to evidence suggesting that today’s young adults hold more conservative attitudes in some areas than do their parents (UCLA Higher Education Research Institute, 2007).

From Radical Flank to Hegemonic Flank: The U.S. Movement Against the Vietnam War, the Demand for Immediate U.S. Withdrawal, and the People’s Peace Treaty

Presented at South Carolina Political Science Association Meeting, March, 2012

Supported by the Winthrop University Research Council

Students: Judson Abraham 2013 and **Andrew Davis** 2011

Faculty Mentor: Stephen Smith, Ph.D.

CAS – Department of Political Science

Drawing parallels with Gramsci’s concept of a hegemonic bloc within a political system, we develop the concept of a hegemonic flank within a social movement. We then apply this concept to the U.S. movement against the war, focusing on the People’s Peace Treaty (PPT), a treaty negotiated by U.S. and Vietnamese students in 1970 and circulated widely in the U.S. in 1971. We argue that the PPT’s demand for the immediate withdrawal of U.S. troops from Vietnam indicated the hegemony within the antiwar movement of this demand and discuss how what can be viewed as a radical flank of the antiwar movement became hegemonic.

The Design, Synthesis, Identification and Purification of Sphingosine Kinase 1 and 2 Inhibitors for Cancer Treatment

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

*Supported by the South Carolina IDeA Networks of Biomedical
Research Excellence Grant from NIH*

Student: Amber Wallace 2012

Faculty Mentor: T. Christian Grattan, Ph.D.

CAS – Department of Chemistry

Sphingosine Kinase-1 (SK1) is an overexpressed enzyme in cancer cells and phosphorylates Sphingosine (Sph) into Sphingosine-1-Phosphate (S1P). It has been found that balance between Sph and S1P play a major role in growth and survival rate of cancer cells. S1P regulates cell proliferation so when the balance is shifted towards S1P the cell’s growth and survival rate increases. In a normal cell where sphingosine concentrations are higher than that of S1P the cell is able to undergo a natural cell death. In most cancer cells, however

the balance is shifted towards S1P due to the overexpression of SK1 within the cancerous cells. As the concentration of S1P increases, the cell favors proliferation instead of natural apoptosis thereby spreading the cancer. If the concentration of S1P can be decreased then cancer treatments can become more effective in killing the targeted cells selectively. Therefore this enzyme is the target of SK1 inhibitors to reduce the production of S1P and shift the equilibrium in favor of the apoptotic pathway. Our research goal is to design, synthesize and purify derivatives of a known SK1 inhibitor with improved oral bioavailability while maintaining its promising inhibitory activity.

Adults' Perceptions of Their Own Versus Others' Helping Behaviors

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: Amanda Shelnett 2012 and **Michael Widrich** 2012

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

(PSYC 302 – Sleight)

Helping behavior is a complicated concept with many factors influencing whether an individual will offer assistance to another. This study examined young adults' perceptions of their own willingness to help compared to their perceptions of the average person's willingness to help across a variety of situations. Participants were 67 young adults. We created a series of scenarios that described a person in need. Following each scenario were response options that ranged from ignoring the situation to offering more help than was actually needed. Half of the participants were randomly assigned to a condition where they were asked to respond to the scenarios by choosing the option that best described how they personally would behave in that situation. The other half of participants was instructed to respond to the scenarios by choosing the option that best described how the average person would respond in that situation. We hypothesized that participants who were answering for themselves would choose more helpful responses than would participants who were answering for the average person. This hypothesis was supported. Compared to participants who answered for the average person, participants who answered for themselves were significantly more likely to select the most helpful option on seven of the 11 scenarios ($p < .05$ in all cases). Results also revealed very few race differences. These findings suggest that young adults perceive themselves as more helpful than the average person. One possible explanation is that people want to see themselves in a better light than they perhaps deserve, assuming that they would be willing to help if someone was in need. Another possible explanation is that our participants were college students who were thinking about a variety of other people when prompted to think of the average person. It might indeed be the case that college students are more helpful than the population at large, because they have more free time and they are required to engage in service activities. These findings contribute to the extensive body of research that attempts to understand the relation between helping attitudes and behaviors.

Standing on Your Feet, I See Clearly Your Eyes

Presented at Sigma Tau Delta International Convention, March, 2012

Student: Edward Szeman 2012

Faculty Mentor: Evelyne Weeks

CAS – Department of English

(WRIT 516 – Weeks)

The poems in this collection, "Hypoglycemia," "What?—And Likewise—How?," "From a Binge on Josh Bowers' Poetry," and "I tried to find the human heart with...", were composed in the Writing 516 workshop course at Winthrop, or were otherwise composed in the semesters between the teachings of those courses. Revisions were conducted both within course workshops and with a group of independent student writers. The poems are intended to be dream-like and comprise psychologically and logically suspect musings. What is literal is often less important than what is hypothetical. That is to say, the internal thoughts of the poems' speakers are intended to reveal the neuroses of the human condition, a sort of nervous energy that can only be expelled through thoughts born out of boredom and lethargy. Considerations of sound and meaning were given precedence over form and style. All except for the villanelle, "I tried to find the human heart with..." are free verse. Other influences on form and style stemmed from the thermodynamic property of entropy and the writings of James Joyce, specifically Episode 7 (Aeolus) of *Ulysses*.

The Design, Synthesis and Characterization of Novel Sphingosine Kinase (I/II) Competitive Inhibitors with an Emphasis on Pharmacophoric Zone "4" Derivation

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

*Supported by the South Carolina IDeA Networks of Biomedical Research
Excellence Grant from NIH*

Student: Kevin Mays 2012 (McNair Scholar)

Faculty Mentor: T. Christian Grattan, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Sphingolipids have historically been known as key components of cellular rigidity and cytoplasmic functionality; recently, however, several sphingolipid derivatives have been characterized as dual structural components and intracellular messengers. Of particular interest are sphingosine-1-phosphate (S1P), an oncogenic and carcinogenic stress-mediated growth factor, and ceramide, a sphingosine derivative believed to mediate apoptotic processes. The phosphorylation of ceramide into S1P is catalyzed by the enzymes Sphingosine Kinase I and II (SPK1/2); the inhibition of this activity has been demonstrated to slow carcinogenesis, metastasis and angiogenesis in cancerous tissues. A number of novel SPK1/2 inhibitors have been identified by Smith et al and show promising anticancer effects *in vitro*; this project specifically focused on the design, synthesis and characterization of Zone "4" inhibitor derivatives to improve upon the bioavailability and efficacy of the base SKI1 inhibitor template.

Enhancing Psi Chi Chapter Leadership: Advisor and Officer Perspectives

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012 Supported by a Psi Chi (the International Honor Society in Psychology) Leadership Grant

Students: Jordan McElroy 2012 and **Erin Sim** 2012

Faculty Mentors: Merry J. Sleight, Ph.D. and Maria LaVooy

CAS – Department of Psychology

This interactive session was designed for faculty advisors and student officers of Psi Chi, the International Honor Society in Psychology. The presentation began with the attendees dividing into faculty and student discussion groups. The facilitators directed the group members to brainstorm about issues that are unique to their positions in Psi Chi using a prepared set of questions. Then, the groups merged to share their perspectives, with the session presenters leading the discussion. The session concluded with the presenters giving a “best practices,” research-based presentation on strategies to enable faculty and student officers to better meet each other’s needs and the needs of Psi Chi chapters, in general.

PCR Amplification of Cytochrome B in Canid Fecal Samples for Species Identification

Presented at 17th annual SAEOPP McNair/SSS Research Conference, June, 2011

Supported by the Ronald E. McNair Program at Winthrop University

Student: Cedric Williams 2013 (McNair Scholar)

Faculty Mentors: Janice Chism, Ph.D.; Kimberly Wilson, Ph.D.; and Cheryl Fortner-Wood, Ph.D.

CAS – Department of Biology

Red foxes are known carriers of infectious diseases and parasites, which can cause death in humans and domestic mammals. The aim of this project is to establish a red fox population from a collection of Canid fecal samples. To accomplish this aim, DNA will be isolated from the samples and multiplex PCR will be used for species identification based on species-specific primers for Canids. The SRY gene will be used for sex identification. Determination of a red fox population will provide useful information on genetic relatedness and establish a DNA bank for future studies on population dynamics and disease.

Priming Participants in Spanish versus English Alters Perceptions

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Student: Laurie Gueits 2012

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

(PSYC 302)

Research has found that language affects individual views and judgments, and specific attitudes and preferences (Ogunnaike, Dunham & Banaji, 2010), as well as emotional experiences (Guttfrud, 1990), and expressions of personality (Ramirez-Esparza, Gosling, Benet-Martinez, Potter & Pennebaker, 2006). The purpose of this study was to examine whether priming participants by having them take a survey in either Spanish or English would influence their perceptions of ambiguous situations. We hypothesized that participants would prefer culturally relevant perceptions directly related to the language priming. Participants were 37 Spanish-English bilingual adults. Half of the participants were randomly assigned to take the survey in Spanish, while half took the survey in English. The survey

instrument included six open-ended scenarios followed by several possible conclusions to the scenario. Participants were asked to rank the conclusions from the one most likely to happen to the one least likely to happen. The conclusions were written so that some contained elements more common to Hispanic populations (e.g., plantains) while other conclusions contained elements more common to an American population. We hypothesized that responding to the survey in Spanish, versus English, would lead to different perceptions of the presented scenarios. This hypothesis was supported for the majority of scenarios and supports the assertion that language has an effect on individuals’ perceptions. Specifically, being primed in a particular language led participants to prefer responses that were more culturally relevant for that language. In other words, language has the power to shape our perceptions and expectations. This area of research may have particular relevance in light of the increasing societal globalization.

Feeling Good and Creative: Positive Affect Enhances Interpersonal Problem Solving

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Student: Erin Sim 2012

Faculty Mentor: Donna Nelson, Ph.D.

CAS – Department of Psychology

Psychologists have begun to focus more attention on positive emotions and the potential benefits they may foster in psychological, cognitive and social domains. In her broaden-and-build theory, Fredrickson (1998, 2001) proposes that positive emotions can exert a “broadening” effect, leading to greater cognitive flexibility and accessibility of a wider range of possible thoughts and actions. Our study focused on the potential facilitative impact positive affect might exert on interpersonal problem solving. We conducted an experiment that required participants to complete two experimental tasks. First, they read a list of statements shown in past research (Seibert & Ellis, 1991) to induce either a positive or a neutral mood. Next, they were asked to complete the modified version of the Means-End Problem Solving Test (Marx, Williams & Claridge, 1992). This task required respondents to read a set of four social scenarios, each describing an interpersonal problem. Each scenario began with a protagonist facing an undesired social situation and then gave a desired goal or end to the story. Participants were instructed that it was their job to develop a middle portion of the story that would enable the protagonist to reach the desired end-point. Participants in the positive mood condition generated a greater average number of relevant steps to solve the interpersonal problems ($M=9.41$) compared to those in the neutral mood condition, ($M=7.72$), $t(72) = -2.614$, $p < .05$. Furthermore, effectiveness ratings for the solutions (made by objective outside observers) were higher for participants in the positive mood condition ($M=3.7$) compared to the neutral mood condition ($M=2.92$), $t(72) = -3.341$, $p < .05$. The extent to which individuals are able to generate effective solutions to problems has far-reaching implications for their personal and social adjustment. Our findings suggest that positive affect enhances open-minded, flexible thinking and can help individuals generate effective and relevant steps to solve interpersonal problems.

Effect of Mood on Creative Solutions to Personal Problems

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Received the Psi Chi Regional Research Award

Student: Erin Sim 2012

Faculty Mentor: Donna Nelson, Ph.D.

CAS – Department of Psychology

The broaden-and-build theory of positive emotion suggests that positive affect leads to greater creativity and open minded thinking (Fredrickson, 2004). This study focused on the effect of positive or negative mood and optimism in relation to creativity of solutions to personal problems. We hypothesized that participants in a happy, versus sad, mood would respond with a greater variety of functional solutions and that participants classified as optimists, versus pessimists, would exhibit superior social problem solving. Fifty-five participants were surveyed. Participants first responded to items comprising the Life Orientation Test (LOT) then, participants underwent either a happy or a sad mood induction. Participants were then instructed to think about a personal social problem and come up with as many different solutions as possible. The participant's solutions were coded into three different categories: functional, avoidant and impulsive-careless (Anderson, Goddard, & Powell, 2011). Results revealed participants in the happy mood condition overall had more functional solutions ($M = 2.28$), compared to those in the sad condition ($M = 1.42$) $F(1, 53) = 10.53, (p < .01)$. In addition, the happy mood condition produced significantly more functional solutions to problems for optimists, while no differences across mood conditions were found for pessimists, $F(1, 53) = 11.79, (p < .001)$. Correlational analyses revealed that participants who were optimistic were more likely to report functional solutions, $r = .40, (p < .002)$, and have a greater number of total solutions, $r = .33, (p < .01)$. In sum, affect was an important determinant of problem solving in our study. Participants in the happy mood condition generated more functional solutions than those in the sad mood condition. These findings support the broaden-and-build theory. Optimists also were more likely to generate functional solutions and a greater number of total solutions to their personal problems. A better understanding of the impact of mood and affectivity on creative problem solving may be useful for improving real life problem solving in work, academic, and interpersonal contexts.

Effect of Long-Distance Dating Relationships on Academic Performance

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Students: Erin Sim 2012, **Janelle Bowman** 2011, and **Sharayah Bagwell** 2011

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

(PSYC 302 - Sleight)

The purpose of this study was to examine the effect of LDR on the academic performance of college students. Participants were 62 adults, with a mean age of 20.26 ($SD=4.05$). Approximately one-third of participants was in a LDR, one-third was in a local relationship, and one-third was single. Participants completed a survey to assess behavior and friendship patterns, communication or lack thereof, infidelity, academic engagement, happiness, and type of relationship (local, LDR, or single). In sum, our hypothesis was not supported by the data. Participants in this study who were in LDR did not have lower grades than other college students. Interestingly, participants in LDR believed they were performing more poorly than other students, although there was no difference in GPA among any of the groups. This perception could be yet another stressor that participants in LDR face. These adults tended to

stay busy in campus organizations. Feeling stretched thin may be one reason why participants felt they were performing poorly in class, or it could have been a strategy to cope with the absence of their romantic partners. Future research may want to distinguish between low stress and high stress LDR, as well as examine motives behind academic behavioral patterns. We also found that increased distance from partner led to increased depression in LDR participants. However, despite the rates of depression seen in LDR participants, participants in relationships overall were happier than single participants, suggesting that the stress of a LDR may be a stress worth enduring. These findings add to our understanding of the college student experience inside and outside of the classroom.

Student Perceptions of Student and Faculty Technology Competency

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Students: Angel DiDomenico 2014, **Jamie Low** 2012, **Amanda Shelnett** 2012, and **AnnaBrook Anderson** 2011

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

(PSYC 302 - Sleight)

The increasing presence of technology in today's society has given rise to the concept of a digital divide, the notion that there is a generation gap in technology competency with younger generations being more proficient (Waycott et al., 2009). Recent research has both supported and opposed the idea of a generational digital divide. The purpose of this study was to assess college students' perceptions of their own technology competency as well as that of an older generation, specifically their professors. Participants ($n = 108$) were randomly assigned to respond to a survey as themselves, to respond as if they were a 25-40 year old faculty, or to respond as if they were a 50+ year old faculty. Participants responded to questions regarding their use, comfort, familiarity, and emotional reactions to technology. The 50+ year-old faculty members were considered by college students to be less familiar with e-mailing than the other two groups, $F(2, 105) = 4.131, p = .019$, and to use email less, $F(2, 105) = 3.97, p = .022$. Compared to the students who answered as if they were professors, participants who provided personal responses considered themselves least likely to use library resources, $F(2, 105) = 3.46, p = .035$; agreed that most of their photos are stored digitally, $F(2, 105) = 25.14, p = .000$; reported being less nervous about technology, $F(2, 104) = 15.12, p = .000$; reported looking forward to buying the latest technology, $F(2, 105) = 20.05, p = .000$; and disagreed that life was easier before technology, $F(2, 105) = 6.69, p = .002$. For Facebook, college students considered themselves to be more familiar with it than the other two groups, $F(2, 105) = 28.74, p = .000$. All of the groups differed on comfort with Facebook, with college students reporting themselves as most comfortable and the oldest faculty as least comfortable, $F(2, 105) = 21.26, p = .000$. These findings suggest that students perceive themselves to be more technologically competent than their professors in certain areas, supporting the notion of a digital divide; however in other areas, perceptions of a digital divide appeared to be minimal. The greatest discrepancies were in the areas of social media use, with college students perceiving themselves as most proficient, and in library use, with college students perceiving themselves as least proficient.

Positive and Negative Adult Experiences Associated with Childhood Parentification

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Students: Brittney Black 2013 and **Katherine E. Lindberg** 2013, and **Alysja S. Garansi** 2011

Faculty Mentor: Merry J. Sleigh, Ph.D.

CAS – Department of Psychology
(PSYC 302 - Sleigh)

Emotional parentification (EP) is when children provide emotional support to family members, while instrumental parentification (IP) is when children take charge of the physical welfare of the family (Jurkovic, Thirkfield, & Morrell, 2001). The limited research on this concept suggests that parentification is usually associated with negative outcomes for the child and young adult (Carroll & Robinson, 2000; Cummings, & Emery, 2008; Hooper, Marotta, & Lanthier, 2008; Jurkovic et al., 2001; Peris, Goeke-Morey, Wells & Jones, 2000). The purpose of the current study was to examine both negative and positive outcomes/adult experiences of parentification. We hypothesized that IP would be associated with positive experiences, whereas EP would link to negative experiences. Thirty men and 70 women, with a mean age of 20.29 (sd = 3.7), responded to the Parentification Questionnaire (Jurkovic & Thirkfield, 1998) and questions modeled after previous studies to assess young adult outcomes. In sum, our hypotheses were partially supported. EP was more associated with negative outcomes; IP was not associated with positive outcomes but was associated with very few negative outcomes. Adults who had experienced IP viewed themselves as less practical and less organized. Perhaps these participants who were expected to take on adult responsibilities as a child rebelled by choosing to be less practical and organized. Another possibility is that these adults were comparing themselves to a high, perhaps unachievable, standard that had been created during childhood for them. Or, these adults may have been reflecting a lack of modeling of these skills in their childhood environment. EP, in contrast, was associated with many negative adult experiences, reflecting a generalized poor self-image. Participants high in EP also placed great importance on having a successful career, perhaps out of a desire to overcome their poor self-image or to be able to be financially self-reliant. Overall, the EP data suggests that taking on an adult level of emotional responsibility (i.e., caring for a parent's emotional needs instead of being cared for) is not beneficial for children and may have long-term consequences.

Initial Reactions and Future Perceptions: Social Stigmas of Male Dancers and the Preconceptions

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Everett Johnson 2012 (McNair Scholar)

Faculty Mentors: Karen Stock, Ph.D. and Cheryl Fortner-Wood, Ph.D.

CVPA – Department of Theatre and Dance

When men introduce themselves as dancers, social preconceptions lay the foundation for attributions members of society make about these men. This affects how male dancers perceive themselves within society. An online survey was administered to examine the reactions and stereotypes members of society have regarding male dancers. Building on Dr. Doug Risner's 2008 research on the stigma male dancers experience and research from Dr. Ramsay Burt in 2007 and 2009 focusing on the male dancer's place in dance history, corollary questions were reflected in this current study. The majority of surveyed

participants were Caucasian females between the ages of 18-24 located in the Southern region of the United States; however, a surprising four percent were international participants. Questions on societal assumptions regarding sexuality, masculinity, strength and intelligence ranked average. Seventy-eight percent of participants said that media was the main source through which they gained these assumptions. Participants responded that male dancers were more likely to be teased, harassed and have a lack of parental support, but also more likely to receive scholarships for training and more performance opportunities than their female counterparts. Ninety-nine percent of participants answered that women were more supportive of male dancers than men and eighty-four percent ranked fear of homophobia as the number one reason why there is an overall lack of support for the male dancer. The most common suggestion participants stated in reducing social stigmas of male dancers for educators was to explain/showcase the importance of the male dancer in the classroom. The most common for parents was to accept/support the child and their pursuit of the dance art form. Finally, suggestions for society as a whole were to reduce stereotyping/bullying/homophobia/overall negative perceptions of male dancers. At the conclusion of the survey, participants were asked to contribute questions they thought would make the survey more dynamic. Such questions included participant relation to male dancers and refining some questions about how preconceptions of male dancers are created. The survey produced 191 respondents with data continuing to be analyzed and examined.

The Expression of Prostate Specific Antigen in Both Prepubescent and Post Pubescent Males Under the Age of Eighteen

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Ashley Bateman 2012

Faculty Mentor: Laura Glasscock, Ph.D.

CAS – Department of Biology

Although the percentage of deaths each year from cancer have decreased in recent years, there is still much information as to how the cancer progresses that is unknown. In this study, we looked at prostate cancer, specifically how the protein prostate specific antigen (PSA) is expressed in males of various ages. PSA is used as a diagnostic marker for prostate cancer in males over the age of 18 and it known to normally function as an enzyme that liquefies semen in these men. The expression and activity of PSA in males that are both prepubescent (ages up to twelve years old) and post pubescent through age eighteen, however, is unknown. Since PSA is used as one of the primary diagnostic tools in prostate cancer, it could be informative to determine if PSA expression in younger males could be used as a predictive factor for eventual development of the disease. To test if and when PSA is expressed in prepubescent and post pubescent adolescents, we used immunohistochemistry to compare PSA expression between adolescent males and males over the age of eighteen who have undergone radical prostatectomy. We found that PSA is expressed by the epithelial cells of the tubuloacinar glands of the prostate from men with prostate cancer as expected. PSA is also expressed by the epithelial cells of the tubuloacinar glands in males under the age of eighteen. We therefore report for the first time that PSA is expressed in males under eighteen years old. Future studies should incorporate serum analysis of males age zero through eighteen to determine if PSA is expressed in either prepubescent males or males twelve to eighteen as a prediction of the time or severity of development of prostate cancer.

“I Remember the Maps of the Holy Land”: The Role of Memory in Waiting for Godot and Six Characters in Search of an Author

Presented at the Southern Regional Honors Council Conference, April, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Mirielle Smith 2013

Faculty Mentors: Paul Hollywood, Ph.D. and Josephine Koster, Ph.D.

CAS – Department of English

Samuel Beckett’s *Waiting for Godot* and Luigi Pirandello’s *Six Characters in Search of an Author* are two of the defining texts of twentieth century drama, partially because both are unconventional, cerebral examinations of reality and existence. Both plays flirt extensively with what it means to be real and sane, primarily through the role of memory. Beckett’s characteristic fragmented and repeated scenes reveal a tortured lack of memory in his characters, which dooms them to continue their cycle of moments infinitely. Pirandello’s six characters exist only in their own memories and those of the author who never put them to page, leaving their existence in constant danger. Both set of characters are obsessed with memory— either creating it or avoiding it— and in their desperation inevitably sabotage themselves.

The Mint Museum’s Maya Censer with Butterfly and Floral Motifs: A Link Between The Maya Worlds

Presented at the Mint Museum’s 22nd Annual Regional Collegiate Art History Symposium March, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Casey Shelton 2014

Faculty Mentor: Alice Burmeister, Ph.D.

CVPA – Department of Art History

(ARTH 352 – Burmeister)

“The Mint Museum’s Maya Censer with Butterfly and Floral Motifs: A Link between the Maya Worlds” details an investigation into spiritual relationships of Mesoamerican peoples and how a secondary element, the social status of particular individuals, affected the relationship. Supporting detail derives from a synthesis of visual analysis and academic research of Maya culture and a Teotihuacan censer from the Mint Museum’s collection. The paper introduces a general sense of the significance of spiritual existence for the ancient peoples in a brief summary of research from anthropologist C.R. Hallpike. His definition of “primitive thought” as being subjective to the needs of nature for survival is translated further into homage towards natural divine forces and explanation of the parallel between two worlds for the Mesoamericans. The paper further relates the relevance of art forms in polytheistic worship with research from several university presses on possible uses and various motifs of the Mint’s Maya Censer. Foremost, the research revealed the censer would have been used in a tomb as a means of metaphorical connection between humans and spirits through the use of incense smoke. Inspection and reporting of various motifs on the elaborately decorated censer is the core aspect of the research. The prominent symbolism is the connection between two natural forces of water and fire represented in multiple clay attachments of butterfly anatomy and water imagery. Identification of this symbolism leads to a surprising networking of these two motifs and other common minor motifs included on the lid. The nature of the censer’s embellishments reinforces the theory that elaboration was closely linked to social importance and status. Due to the close agreement of research from several sources, an accurate plausible conclusion of the censer’s symbolism portrays a fascinating portrait of a prominent warrior of Teotihuacan and his probable spiritual connection. The composition of the censer ultimately

yields a conclusion of connections between Mesoamerican social hierarchy, religion and funerary practices in what first seemed an unlikely conclusion from a censer titled “Censer with Butterfly and Floral Motifs”.

Objecting to the Fatherland: A Comparison of British World War I Poets and American Vietnam War Poets and Musicians

Presented at the 7th Annual Winthrop University English Department Undergraduate Research Conference, February, 2012

Student: Mirielle Smith 2013

Faculty Mentor: Stephen Smith, Ph.D.

CAS – Department of Political Science

Though not of the same war nation, or generation, the American antiwar poets and songwriters of the Vietnam era had much in common with the British trench poets of World War I. In terms of character, subject matter, and evolving language usage they were their spiritual successors. In both times the young men of a nation went to war in a way that was so much more devastating than what their fathers and generals had experienced that the artistic language of the time was simply inadequate. Incapable of not expressing themselves in some way, these protesters and soldiers forged new artistic traditions, creating lasting impacts in the cultures around them. Where the trench poets shocked and appalled by graphically describing death by gas and the way living legs rotted in the stagnant water of the trenches, Vietnam writers frankly told of the body-burning effect of napalm. Both raged against an uncaring, unaffected public and the crushing sense of knowing they—and most of their generation—would be destroyed by the war. Both cursed more freely than was acceptable and questioned the morality of their religious and political leaders for endorsing the carnage. Additionally, each group riffed on established wartime conventions such as the old patriotic standby *dulce et decorum est pro patria mori*—it is sweet and fitting to die for the fatherland—scathingly reworked by both Wilfred Owen and Ezra Pound and the military cadence used in Country Joe McDonald’s “The ‘Fish’ Cheer/I-Feel-Like-I’m-Fixin’-To-Die Rag”. Far more than for beauty or entertainment, the Vietnam protestors and British trench poets used their art as catharsis and protest of the terrible wars in which they found themselves embroiled.

Four Poems on Human Endurance

Presented at the Winthrop University English Department Undergraduate Research Conference and Creative Showcase, February, 2012

Student: Mirielle Smith 2013

Faculty Mentor: Evelyne Weeks

CAS – Department of English

(WRIT 516, WRIT 510 – Weeks)

These four poems—“*Padal Śnieg*,” “It is the Swallow,” “Ballinskelligs Beach, Co. Kerry,” and “Ode to the Old Men on the Interstate”—were not conceived of as a set. They were written at different times, in different continents, and with different intentions. And yet, each poem is deeply rooted in the very human concerns of how and why people endure, both as individuals and as cultures. “*Padal Śnieg*” (“It was snowing” in Polish) chronicles a trip Auschwitz and Birkenau, and the amazing fact that the Polish people have recovered and even flourished in the shadow of the camp. “Ballinskelligs Beach, Co. Kerry” was written in Ireland and concerns the realization that souvenirs and the efforts people make to leave lasting impressions of themselves are semi-permanent at best, but that the process of doing so is nonetheless important. “Ode to the Old Men on the Interstate” is similarly concerned with

impermanence and endurance, in the form of old soldiers who continue living in the modern world which is quite different from the one they grew up in. Finally, “It is the Swallow” discusses the nature of hope, which is found in the simplest of places. Together, these poems address some of the issues that concern people, regardless of age or culture.

Combo Number Four (Creative Writing–Prose)

Presented at the 7th Annual Winthrop University English Department Undergraduate Research Conference and Creative Showcase, February, 2012

Student: Alexander Muller 2014

Faculty Mentor: Evelyne Weeks

CAS – Department of English

Combo Number Four is a short prose piece that was originally intended to be published in the Editor’s Section of Winthrop University’s literary magazine, *The Anthology*. The piece looks at an urban apartment complex and its occupants of various ethnicities through the eyes of a bored, young American narrator. It is an experimentation in stream of consciousness style, attempting to move around a coherent rising plot until the necessary climax. The repetition of phrases, images, and characters creates a cyclical pattern that strives to convey a sense of confinement, but also a sense of oneness. Looking primarily at race issues, Combo Number Four tends toward the humorous pseudo-insightful with banal vulgarity, and comes complete with such wonderful details as a lesbian ménage à trois. However, in the end, the piece strives to capture the beauty in images such as an origami crane floating in a fountain, and the understanding of the human condition that comes with age.

Harry Potter And The Significance Of The Phoenix—Creating The Context Of Rowling’s Death Parable

Presented at PotterWatch Conference, University of North Carolina Charlotte, October, 2011

Student: Alexander Muller 2014

Faculty Mentor: Leslie Bickford, Ph.D.

CAS – Department of English

(ENGL 200 – Muller)

In this report, I examine the construction of *Harry Potter* novels both in immediate details and in broader overtones. Relying heavily on the metaphor of the mythological phoenix, I explore myths that J.K. Rowling herself has created. Most notably, of course, is the myth of the Three Brothers in *The Deathly Hallows*, yet, even the fictional game of Quidditch may be viewed allegorically, as well as the entire Potter saga itself. Thus, my report is divided into three sections, each describing various contexts in which to read these books: a modern/biotechnological context told through the villain Voldemort and how it relates to what social philosopher Francis Fukuyama calls “our posthuman future;” an intertextual context told through Harry as the Seeker, both in the game of Quidditch and in the structural plot in each of the 7 books; and finally, the context of the broader myth and the cyclical phoenix. While all three contexts deal with the same theme of eternal life/resurrection, I will argue that none is singularly more important than another, rather, that these multiple contexts work together to make Rowling’s work readable and powerful.

Seven Works of Poetry by Joshua Dunn

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Joshua Dunn 2013

Faculty Mentor: Evelyne Weeks

CAS – Department of English

Each of the seven poems within this collection, “A Treatise on the Necessity of Being Nimble,” “Paris in the 1920’s,” “We, the Mad Scientists,” “Whole Plates of Pears,” “Poetics,” “Autumnal Wind,” and “Winter Pansophy,” are works originally composed during the 2011–2012 school year, as well as during the preceding summer. Each of these works has undergone extensive revisions throughout the year, both in independent, student-organized workshops, and within the Writing 510 program. With the exception of “Whole Plates of Pears,” which employs a sonnet form with both an external and an internal rhyme scheme, the works within this collection are constructed in free verse, using various structural elements including repetition, assonance, and alliteration; attention to image, however, is the primary poetic focus within these works. The themes within this collection are broad in range. In “A Treatise on the Necessity of Being Nimble,” we see an examination of the inescapable nature of memory, while “Whole Plates of Pears” explores the theme of detachment in the face of personal tragedy. “Paris in the 1920’s” as well as “We, the Mad Scientists,” are similar in their exploration of certain darker elements of romantic love, while “Autumnal Wind” and “Winter Pansophy” serve as complimentary examinations of self-hollowing and nature. In “Poetics,” we see further thematic difference in that it provides a shift from the personal, examining instead the nature of poetry as an art form. Where disharmony exists within the themes themselves, there is coherence in the ways in which they are addressed; the poems in this collection are similar in that they work toward a unification of natural and social imagery, and that they, hopefully, work in such a way as to serve as a conversation with the reader.

Protein Purification and Determination of Metal-Binding Affinities of a Nickel-Uptake Regulator in *Streptomyces coelicolor*

Presented at the South Eastern Regional Meeting of the American Chemical Society, October, 2011

Supported by a Research Corporation Award 20160, INBRE (P20GM103499)

Student: Paisley Trantham 2012

Faculty Mentor: Nicholas E. Grosseohme, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

The *Streptomyces* genus is a gram-positive, soil-dwelling bacterium that is responsible for the production of anti-tumor agents, immunosuppressants, and over half of the natural antibiotics in use today. *Streptomyces coelicolor* contains a family of metalloregulators known as the FUR (ferric-uptake regulator) family. The FUR family of regulatory proteins plays a major role in the global metal regulatory network in *Streptomyces coelicolor*. Members of this family are generally responsible for the regulation of a particular metal to maintain homeostasis within the cell¹. These proteins are characterized by a homodimeric structure consisting of a DNA-binding domain (DBD-domain), a dimerization domain (D-domain), and a connecting interdomain hinge loop region². These proteins contain at least two metal-binding sites per monomer, of which at least one is the regulatory site. It is speculated that binding of a regulatory metal in the site located in the hinge loop region causes the allosteric transformation from the inactive to active conformation of the protein. NUR (nickel-uptake regulator) contains the commonly seen characteristics of the FUR family members and exhibits the presence of two metal-binding sites. The M-site, which is speculated to be

nonspecific yet usually coordinates a zinc (II) ion, is located in the hinge loop region of the protein. The second metal site, the Ni-site is located at the dimer interface of the DBD- and D-domains and coordinates nickel in the crystal structure³. NUR is the only member of the FUR family found to have a nickel-specific binding site, making it an interesting target for biophysical characterization. After purification of the protein, isothermal titration calorimetry and spectrophotometric assays will be used to analyze the affinity of wild-type NUR for zinc (II) and nickel (II). This process will be repeated for versions of NUR with mutations of H33A, H86A, H88A, H90A residues in the zinc-site.

2 Text or Not 2 txt: Using Texting to Aid Literacy

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Stephanie Bartlett 2012

Faculty Mentor: Josephine Koster, Ph.D.

CAS – Department of English
(ENGL 507 – Koster)

With the ever-increasing number of short message service (SMS) text messages being sent around the globe, the language of texting, also known as textese or slanguage, has been vilified by people for destroying the English language. The orthographical features of textese (pictograms and logograms, initialisms, omitted letters, nonstandard spellings, and shortenings) are often considered novel but detrimental conventions to the English language. However, linguistic researcher David Crystal illustrates how these features of textese have actually been in use and accepted historically in standard speech and writing. Therefore, based upon research studies from Nenagh Kemp, M.A. Drouin, and Kevin Durkin that consider the positive correlations between textese use and literacy skills, my paper will analyze the impact that textese can actually have on aiding in the development of literacy skills over time. Because these studies cover a wide range of geographic locations such as Britain, Australia, and the United States, as well as a wide range of age categories from young adolescents to college adults, the results are noteworthy. Each study concluded that the use of textese is not necessarily harming the English language; in fact, the use of textese is positively linked with improved literacy skills according to the scores on standardized reading comprehension and spelling tests. Thus, my paper argues that based on the above evidence, as well as on research into the pedagogical practices that are traditionally used to improve literacy skills, people need to embrace the phenomenon of texting to aid in literacy and language development of all people; then, if needed, adults should help younger adolescents learn to code-switch out of textese in order to use Standard American English when academically expected.

Class Transcendence by Janie in *Their Eyes Were Watching God*

Presented at the Winthrop University English Department Undergraduate Research Conference and Creative Showcase, February, 2012

Student: Raven M. Gadsden 2013

Faculty Mentor: Leslie Bickford, Ph.D. and Casey Cothran, Ph.D.

CAS – Department of English
(ENGL 300 – Bickford)

In this piece, I attempt to demonstrate the importance of Janie's marriages and the way in which she used them to travel between different class systems. Janie experiences the proletariat with Logan the bourgeois with Joe Starks and a sort of no class with Teacake. Through each of her marriages, Janie also gains a perspective on life and the person she wants

to be. By the time she ends up with Tea Cake, she begins to create her own ideology within the superstructure and also begins to reject her middle class lifestyle in favor of the one introduced to her by Teacake; the lifestyle that gives her the freedom to express herself the way that she sees herself and not the way that others see her. Janie probably would not have gained these perspectives if she had not experienced these marriages. Janie is encompassed in a new world of possibilities for herself in each of her marriages.

In Vitro Generation of Cu¹⁺ Through Spontaneous Aqueous Processes

Presented at the South Eastern Regional Meeting of the American Chemical Society, October, 2011

Student: Zayed A. Almadidy 2012

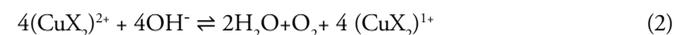
Faculty Mentor: Nicholas E. Grosseohme, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

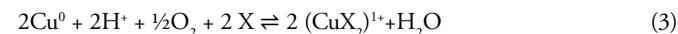
Metal toxicity in biological systems stems from the innate ability of some metal ions to cycle between multiple oxidation states. This is particularly true for iron and copper, both of which are characterized by a reduction potential within the boundaries of cellular redox processes. Left uncontrolled, this redox cycling can catalytically generate excessive amounts of reactive oxygen species that inevitably lead to cellular damage and death. The biological response to metal toxicity is largely dependent on metalloregulatory proteins. These sensory proteins maintain the homeostatic concentration of metal ions through careful control of metal uptake, efflux and detoxification machinery. To fully understand how these proteins function, experimental systems must be designed to study the biologically relevant oxidation state of the sensory metal; for copper, this requires stabilization of the cuprous (Cu⁺) ion. Unfortunately, this is a nontrivial endeavor due to the disproportion equilibrium:



The goal of this research is to exploit the reverse of this equilibrium to generate Cu⁺ in the presence of stabilizing ligands. Specifically, the kinetics and thermodynamics of metals binding to bathocuproinedisulfonic acid (BCS), bichinchonic acid (BCA), and acetonitrile have been explored. Through spectrophotometric monitoring of the formation of these complexes, we determined that Cu¹⁺ can be prepared independently of the comproportionation reaction (reverse of equation 1). We present compelling evidence that Cu²⁺ is reduced to Cu¹⁺ in a base mediated process:



Furthermore, elemental copper may be oxidized to Cu¹⁺:



These experiments lay the groundwork for designing a Cu⁺ stabilizing system that will be useful in a variety of biophysical experiments including spectrophotometry and calorimetry.

Cloning and Protein Expression of FOXO from *Ciona intestinalis*

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

*Supported by the South Carolina IDeA Networks of Biomedical
Research Excellence Grant from NIH*

Student: Zayed A. Almadidy 2012

Faculty Mentors: Heather Evans-Anderson, Ph.D. and Nicholas E. Grosseohme, Ph.D.

CAS – Department of Chemistry, Physics, and Geology and Department of Biology

Cardiovascular-related diseases are the leading cause of fatalities in the United States, responsible for nearly one million deaths each year. These conditions often times lead to damaged myocardial tissue which results in irrevocable loss of heart function. Forkhead (FOX) transcription factors (TFs) have been implicated to have a potential role in myocardial repair and are known to function in the regulation of mitosis, proliferation, cellular differentiation and apoptosis. All FOX TFs feature a winged helix DNA binding domain (DBD) that functions to mediate target gene expression. It has also been established that the activity of FOX TFs function in tandem via protein-protein interactions. In addition, FOX TF activity can also be mediated by posttranslational modifications that include phosphorylation, acetylation and ubiquitination. FOXO is a subgroup of these transcription factors that are regulated by growth factors through PI3K/AKT signaling pathways. The phosphorylation of FOXO, mediated by various kinases, initiates the binding of 14-3-3 proteins, which results in nuclear exportation and thus inhibits target gene expression. The goals of this project include a full sequence cloning of the FOXO DBD and a complete biochemical characterization of interactions between the FOXO DBD and its respective DNA or protein partners as well as any post-translational modifications that may affect such interactions. For such an experiment, *Ciona intestinalis* (*C. intestinalis*) specimens were utilized as they hold the simplest form of the chordate gene. To this end, we have amplified the DBD of FOXO from *C. intestinalis* and ligated it into a pET15a expression plasmid. *E. coli* BL21 (DE3) cells were transformed with this construct and used for protein expression. Currently, a chromatography based purification strategy is being generated. Upon purification, FOXO DBD-DNA interactions will be explored using electrophoretic mobility shift assays and quantitatively measured through fluorescence anisotropy. The ultimate aim of our research is to define the mechanisms by which the FOXO DBD functions to regulate gene expression in *C. intestinalis* during heart development and myocardial repair.

***In-Vitro* Evaluation of the Anti-Tumor Activity of a Series of Novel Benzisoxazolo[2,3-a]pyridinium Tetrafluoroborates**

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Christine Harvey 2012

Faculty Mentors: Takita Sumter Ph.D. and James M. Hanna, Jr., Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Given the dependence of cancer cell viability on DNA replication and gene transcription, DNA binding molecules are well-established staples in cancer therapy. DNA intercalators possess the ability to complex with DNA, primarily through pi stacking interactions, and significantly distort its structure, ultimately impacting a wide range of physiological processes. Recently, the synthesis of a series of novel benzisoxazolo[2,3-a]pyridinium tetrafluoroborates were reported and due to their polycyclic aromatic structure, we tested their anti-tumor activity. In vitro cytotoxicity against human colorectal cancer cells (HCT116) was evaluated using a 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyl tetrazolium bromide (MTT) assay.

Our results show that all eight of the compounds tested induced significant cytotoxicity with IC50 values ranging from 1-19 μ M. Moreover, the cytotoxicity induced by these compounds was time and concentration dependent and comparable to values published for 5-fluoro-2'-deoxyuridine (5-FdURd). To confirm that the tetrafluoroborate counter ion did not contribute to the activity of these compounds, we treated HCT116 cells with varying concentrations of sodium tetrafluoroborate and observed no statistically significant effect on cell viability. Additional studies will evaluate the potential to induce DNA strand breaks in order to better understand the mechanisms by which these compounds act. We have identified a novel series of molecules that could provide great promise to cancer therapy development efforts.

Sexpartite to Quadripartite: the Progression of Gothic Vaulting

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Meghan C. Haller 2012

Faculty Mentor: Laura Dufresne, Ph.D.

CVPA – Department of Art History

Gothic cathedrals are a favorite topic of discussion in every Art History survey class since they exemplify a great accomplishment in architecture from the medieval world. The gothic era of architecture was ever changing as every city that rebuilt or began a new cathedral wanted to surpass what had previously been erected. My research is focused on how the vaulting types altered over time as well as how vaulting differed from one country to the next. This topic was inspired by William Taylor and Robert Mark's "The Technology of Transition: Sexpartite to Quadripartite Vaulting in High Gothic Architecture" published in *The Art Bulletin* in 1982. The authors contend that sexpartite vaulting gives way to quadripartite vaults, which went against the widely held theory that as vaulting became more popular sexpartite vaults were used more as they were more ornate. To further examine this claim I reviewed other articles by scholars such as K.D Alexander, R. Mark, J.F Abel, Paul Frankl, Walter C. Leedy Jr, and Henry James Snyder. Through my research I came to the conclusion that vaulting styles change from sexpartite to quadripartite first in France and then other countries followed suit, incorporating new decorative devices in each region. England broke away from traditional quadripartite vaulting and set a new precedent with their experimental fan vaulting, inspiring new vaulting styles in Germany. When studying Gothic cathedrals there are many key aspects to explore, yet vaulting is certainly one of the most important of these changes. With the invention of new vaulting styles more support was available to hold up the towering walls and clerestories filled with the colorful stained glass, so strongly associated with the beauty of the Gothic style.

Born Again

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: John Huffman 2012 (McNair Scholar)

Faculty Mentor: Michael Lipscomb, Ph.D.

CAS – Department of Political Science

This paper explores the theological understanding and scriptural premise of the popular Christian notion of being "born again." Some sacred texts point to the born again experience as an event that allows participants' vision and entrance into God's Kingdom. A contemporary religious perception sees the "born again" experience an act that first requires individuals to petition for salvation before experiencing their rebirth. Denominational sub groups take the measure even further by suggesting rebirth is preceded by predetermination

and grace, which both originate from God (Burk Parsons, 2005). This paper argues that these conventional understandings of the “born again” experience reflect and reproduce a mistakenly exclusionary logic within Christianity. This paper, therefore, seeks to adopt an inclusive language suitable for establishing a Christian charter more in line with the teachings presented to the first church, which embraces the essence of a broad range of historical literature beyond the canonical books of the Christian Bible. The resolution pursued here requires clear textual distinction between the “born again” and “salvation” experiences, eliminating the overlap of the two particular phenomena.

Breaking with Tradition: The Unconventional Rhetoric of Adrienne Rich, Gloria Anzaldúa, and Nomy Lamm

Presented at the Winthrop University English Department Undergraduate Research Conference and Creative Showcase, February, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Joanna Tepper 2012

Faculty Mentor: Amy Gerald, Ph.D.

CAS – Department of English

For ages, women have been fighting for the right to have their own voice, and once they gained the right to vote and equality under the 19th Amendment to the Constitution, they began to develop that voice in creative ways. My paper addresses how Adrienne Rich, Gloria Anzaldúa, and Nomy Lamm searched for their own voice and broke away from traditional conventions of writing in order to do so. Rich, Anzaldúa, and Lamm are twentieth century feminist writers who break from convention, turning away from male-dominated traditions, to establish their identities and redefine their genres. In “When We Dead Awaken: Writing as Re-Vision,” poet and essayist Rich redefines the process of revision by presenting readers with multiple examples of her poetry at different stages in her writing career within the traditional essay format, which demonstrate how Rich experimented with poetic form and her growth as a female poet; in “How to Tame a Wild Tongue,” Chicana-born Anzaldúa addresses her life as on the border between Texas-U.S. Southwest and Mexico using a mixture of languages to battle traditional writing conventions and the silencing of language; and in “It’s a Big Fat Revolution,” Lamm addresses the idea of a female body image through the use of obscene and casual language in what she jokingly refers to as a “basic thesis paper, college essay format” (Lamm 455). Rich, Anzaldúa, and Lamm are three very different women, discussing very different topics, but all three women use personal experiences and try to change language by breaking with male-dominated traditions in order to address the idea of female authorship. In order to achieve this break, these three women chose to use poetry, mixing languages, and casual and obscene language within their writing, which demonstrates their role as leaders for women writers.

“Portia’s Deception: Moral Superiority in *The Merchant of Venice*”

Presented at the Winthrop University English Department Undergraduate Research Conference and Creative Showcase, February, 2012

Student: Stephen Crawford 2012

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English

Many modern critics have attempted to account for the seeming incongruities in *The Merchant of Venice* that make the play’s comic resolution appear lacking. One such critic, Alice Benston, suggests that viewing the play’s structure as built around the casket trial, the courtroom scene, and the ring episode allows for a more complete sense of comic resolution.

The purpose of this paper is to qualify Benston’s assertion. Portia’s role in and attitude toward these trials reveal that she is not, as Benston suggests, defending the sanctity of law, but rather is pursuing the furtherance of selfish motives. Not only does Portia violate the law, but she also adheres to prudish social standards of appearance and emasculates Bassanio through deceit. These issues complicate the traditional interpretation of Portia as a paragon of Shakespearean womanhood. By exploring Portia’s duplicitous nature and revealing her similarities to the vengeful Shylock, Shakespeare reveals the illegitimate nature of the Christian character’s appearance of moral superiority. Thus, in order to resolve these conflicting elements and allow the play to achieve its comic resolution, one must first accept as given the Christian ethnocentricity endemic to Shakespeare’s own society. Portia acts as an agent of this Christian ethnocentricity by asserting a false sense of moral superiority in each of the three trials. Yes, the play centers on the three trials but in a more problematic way than Benston envisions.

“Thanks, Noble Peer”: Shakespeare’s *Richard II* and His Counterpart in Holinshed’s *Chronicles*

Presented at the Winthrop University English Department Undergraduate Research Conference and Creative Showcase, February, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Aaron Everhart 2013

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English

The purpose of this paper is to identify and explain the changes Shakespeare makes to his source material, Holinshed’s *Chronicles* of England, Scotland, and Ireland, within the murder scene of *Richard II*. My approach is more focused than Robert Adger Law’s “Deviations from Holinshed,” which assesses the play in its entirety, while also arguing that Shakespeare’s alterations make Richard an appealing character to the audience by the time he is murdered. Other scholars agree that Shakespeare transforms Richard from ill-liked to the audience’s favorite; for example, Charles Forker’s “Unstable Identity in Shakespeare’s *Richard II*” states, “The overall purpose is to create as much sympathy as possible [for Richard].” By charting the tension within Shakespeare’s use of his historical source, this paper aims to augment Forker’s interpretation. Of special note, Holinshed’s *Chronicles* lists three possible deaths for the actual King Richard, of which murder is the one best suited for transforming the fictional King Richard II from ill-suited ruler to humble man. Shakespeare’s murder scene is thus a carefully constructed dramatization, and its presence within the play supports the idea that Shakespeare wants to make Richard look sympathetic.

The Heavy Weight of Childhood Obesity: The Role Of Dance Education in Lightening the Load

Presented at the Southeastern Association of Educational Opportunity Program Personnel (SAEOPP), June, 2011 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the Ronald E. McNair Postbaccalaureate Achievement Program

Student: Megan E. Friend 2012 (McNair Scholar)

Faculty Mentor: Stephanie Milling, Ph.D.

COVPA - Department of Theatre & Dance

(MCNR 300 - Fortner-Wood)

The rate of childhood obesity in the United States has nearly tripled in the past thirty years (Koplan 22). The extraordinary rate of childhood obesity must be counteracted and dance education programs harbor the potential to assist-K-12 students have varying environments in their homes, but public education is one way to unify the body of knowledge about healthy living and have a stronger role amongst students to lead healthier lifestyles. Unfortunately, through research and critical thinking, it is common to find that the current state of the dance education curriculum and general structure of dance classes do not currently lend any significant assistance in obesity control for students; however, the physical and psychological benefits of dance in conjunction with legislative support of programs could easily allow dance education programs to become a vehicle for health awareness in K-12 students. In this continued research, anonymous surveys completed by South Carolina pediatricians and child psychologists clarify the physical and psychological impact and common treatments of childhood obesity in order to better assess the most effective methods of support that K-12 educational dance programs may provide to obese students. The findings are triangulated with knowledge of dance education and literature research from both education and health fields in order to formulate an educational dance instructional model that could become a catalyst for stronger health awareness and increasing the potential for obesity control in overweight students.

Responding to Alec and Angel: Hardy's Ironic Justice in *Tess of the D'Urbervilles*

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Received the William A. Sullivan Undergraduate Writing Award

Student: Alexandria Matheny 2012

Faculty Mentor: Gregg Hecimovich, Ph.D. and Siobhan Brownson, Ph.D.

CAS – Department of English

(ENGL 300 – Brownson)

In this paper, I examine the treatment of Alec D'Urberville and Angel Clare in Thomas Hardy's *Tess of the D'Urbervilles*, particularly regarding the reader's response to each character and his relationship with Tess Durbeyfield. Although many readers tend to find Alec more likeable than Angel, they suppress their true feelings because they feel that Hardy expects them to react a certain way: that is, they believe that Hardy intends for Alec to be seen as the villain and Angel to be seen as the hero. Hardy instills this belief within the reader primarily by associating each man with an archetype, thus creating an apparent battle between "good" and "evil." For this reason, Hardy makes the reader believe that there is justice in Alec's death because in the reader's mind it signifies that Alec—the villain—is finally vanquished and Angel—the hero—triumphs, making the battle between "good" and "evil" end the correct way. My thesis is that the supposed "good" and "evil" portrayal of Angel and Alec is simply

an illusion that Hardy uses to manipulate the reader; therefore, the discrepancy between the attraction toward Alec the reader actually feels and what Hardy makes him believe he should feel is not accidental. In the paper, I explore several factors regarding this discrepancy; namely, the reason why the reader tends to find Alec an attractive character, the significance of Tess in shaping both the reader's view and the men's relationship to each other, and the purpose of Hardy's manipulation in the tragic end of the novel.

Synthesis of a Sphingosine Kinase Inhibitor with Modified Zones Two and Three

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the South Carolina IDeA Networks of Biomedical Research Excellence Grant from NIH

Student: Nathallia Bremner 2012

Faculty Mentor: T. Christian Grattan, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Sphingosine to sphingosine-1-phosphate conversion has become a recent target in combating cancer. The enzyme sphingosine kinase allows the conversion to occur, which ultimately determines cell proliferation versus apoptosis; the enzyme has been discovered to exist in the high concentration in the cancerous cells. An interesting notion to stopping these undesirable concentration levels would be to limit what the relative concentration is to what it could be; this way attaining the undesirable concentration level of S1P within the cell would directly lead to apoptosis. SK inhibitors of the past have not been specific enough to be of good use; they affect multiple lipid and protein kinases instead of acting on a specific-basis. In the aims of specificity, more energy has been put into producing sphingosine kinase inhibitors whose overall functionality is not lost, however toxicity is lost. Analysis of the most effective inhibitors has led to the design and ultimate synthesis of testable compounds whose relative characteristics entail promising results. In effect, the best of the best analogues have been analyzed and derivatives based off of the best (SKI I) are in line to be created and tested for efficacy.

The Development and Application of African American English

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Bethany M. Geddings 2012

Faculty Advisor: Amy Gerald, Ph.D.

CAS -Department of English

African American English (AAE) has been the subject of debate for several decades now. Researchers and educators have pondered whether or not AAE should even be allowed in a classroom setting. Only recently has the use of AAE been considered an inclusive form of discourse in American schools. Speakers of AAE have been fighting for decades against societal and professional bias. Often times, AAE speakers are considered lazy or unintelligent by others who do not have a complete understanding of this dialect. Teachers do not recognize the patterns of the language and the rationale behind those patterns; therefore, they struggle with finding the most effective way to teach their students. If teachers first understand the development of this dialect and why certain patterns exist, then they can use different approaches that will assist students long-term. This will also result in a greater appreciation for AAE both by its speakers and by their peers. If students are able to see that AAE has patterns just as SWE, then they will more than likely see AAE as an actual dialect. Although there are clear differences between the two dialects, each one holds validity. Despite previous attempts to understand and accept the use of AAE in the

standard classroom, effective strategies that will incorporate AAE into academic writing still have not been implemented by many of today's teachers. Research shows that the patterns of AAE are dependent upon each student's culture and background. Ralph L. Fasold, Professor Emeritus at Georgetown University, and Arthur K. Spears, professor at The City University of New York, have done research on the rationale behind both the imperative "be" and the semi-auxiliary "come" in AAE. These specific patterns have both stemmed from outside influences on AAE speakers. In order to best teach different students with different linguistic backgrounds, Teresa Redd and Susan Webb present five different approaches that can be used in the classroom setting to assist teachers with the incorporation of AAE. Each approach varies slightly from the others in order to accommodate a student's specific needs in the classroom.

The Characterization, Synthesis, Purification and Isolation of Sphingosine Kinase Inhibitors

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the South Carolina IDeA Networks of Biomedical Research Excellence Grant from NIH

Student: Louise Mount 2014

Faculty Mentor: T Christian Grattan, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Sphingolipids are a family of compounds that, in addition to being structural constituents of cell membranes, play key roles as signaling molecules. In particular two of these sphingolipid metabolites, ceramide and sphingosine 1-phosphate (S1P), have recently received considerable attention as integral mediators of cell death and survival. The regulator of the ceramide/S1P equilibrium is sphingosine kinase-I (SKI) which phosphorylates sphingosine to form S1P. SKI has been identified as an oncogene and is, therefore, of considerable interest in the treatment of cancer. To this end, a number of novel inhibitors of SKI have recently been identified and evaluated by Smith et al. A concise four-step synthesis of SKI-I has been completed, and in vivo studies show the target compound to have a IC₅₀ = 1 μM. Straightforward functional group modification allows for numerous derivatives to be synthesized quickly and concisely in effort to increase the therapeutic effect and oral bioavailability of SKI-I. Following a base catalyzed mixed Claisen condensation, two successive microwave reactions run under neat conditions produce a family of diverse complexes in relatively high yield. These compounds will be analyzed to determine the change in inhibition of sphingosine kinase-1. Variations in zone 1 can be achieved synthetically. These modifications will identify the pharmacophoric portion of this portion of the template structure so that an optimized inhibitor could be realized.

“Personality Type in Hamlet”

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Jessica Richardson 2012

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English

William Shakespeare's *Hamlet* is traditionally understood as a character who has trouble taking action, but what role does his personality type play in his inaction? Critics such as Kenneth Tucker in *Shakespeare and Jungian Typology: A Reading of the Plays* and Barbara Rogers-Gardner in *Jung and Shakespeare: Hamlet, Othello, and The Tempest* describe Hamlet as an introverted thinker, but currently there is no comprehensive Jungian psychological reading of his personality type. This paper uses the Meyers Briggs Personality Type Indicator (MBTI) to provide a thorough profile for Hamlet. The MBTI is based on C. G. Jung's four-fold typological approach to personality traits: extraversion/introversion, sensing/intuition, thinking/feeling, and perceiving/judging. Hamlet is an INTP-an introverted thinker who emphasizes intuition and perceiving. One characteristic of INTP personalities is the inability to take quick action, so Hamlet's personality type inhibits his ability to respond to the ghost's desire for revenge. It is not until Hamlet diverts some of his psychic energy to his inferior function, feeling, that he becomes able to take revenge. Had he lived, he might have achieved some degree of individuation, Jung's term for wholeness, which might have allowed him to benefit from the added aspect of feeling in his personality.

Gender Quota Laws in France

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Megan Robinson 2012

Faculty Mentor: Karen M. Kedrowski, Ph.D. and Chris Van Aller, Ph.D.

CAS – Department of Political Science

Gender quota laws are policies enacted by over one hundred countries in the world and are aimed at increasing women's participation in government. This paper examines the failure of the French parity law in achieving equality in the National Assembly. I have examined the Belgian and Rwandan gender quota laws and established a criterion for a successful gender parity law. Based on the five criteria I have determined that the French quota law was unsuccessful for a number of reasons including the language of the law and a lack of sanctions for non-compliance. My findings suggest great doubt on the supposed good will of the French government to have true equality in the National Assembly.

“King Lear's Journey with his Anima”

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Brianna Sanders 2012

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English

The purpose of this paper is to show that although King Lear experiences anima possession, he does make progress with his anima and achieve spiritual elevation before his death. Previous critics have analyzed King Lear using other Jungian concepts such extroverted vs. introverted thinking and archetypes. For example, in his essay “The Vision of King Lear”

James P. Driscoll compares the different stages of Lear's personality to the archetypal stages of Yahweh, Job, and Prometheus. H. R. Coursen, however, argues that King Lear possesses the traits of an extroverted thinker. Coursen uses this Jungian concept to provide evidence for King Lear's actions and decisions throughout the play. Since very little has been done to explore the Jungian concept of the anima in the play, I seek to examine the play using the anima archetype and to explore another element of King Lear's psyche. My thesis is that King Lear experiences anima possession because he does not take the proper steps to control his anima but that, through his shadow work with Kent and the restoration of his relationship with Cordelia, Lear makes progress in properly integrating his anima. An examination of the language in the play shows how his anima possession affects his psychological development and the development of his relationships with the other characters. It also shows how the heart imagery in the play parallels Lear's anima possession. The progress that he makes with his anima can be seen through the examination of his shadow work with Kent and through the assessment of Lear's changing view on female sexuality. King Lear's progress with his anima ultimately leads to his spiritual elevation. In the final scene of the play, directly after Cordelia's death, Lear's words suggest that he can see her spirit ascending, a sign perhaps of the spiritual insight that he has achieved. Thus, although King Lear does not reach individuation, he does progress and move toward spiritual elevation.

Food Desert: The Effects of Location of Food Retailers and Role of Food Deserts in Rock Hill, SC 29733

Presented at 17th Annual SAEOPP McNair/SSS Scholars Research Conference, June, 2011 and Southeast Chapter of American College of Sports Medicine (SEACSM) Conference, February, 2012

Supported by the Ronald E. McNair Post Baccalaureate Program, Winthrop University, Summer, 2011

Student: Shantelle Igozee 2013 (McNair Scholar)

Faculty Mentor: Janet Wojcik, Ph.D.

COE – Department of Exercise Science Program

(MCNR 300 - Fortner-Wood)

The occurrences of obesity are on the rise in the United States. Intervention is needed in these obesogenic communities. The systems in these communities are organized in such a way that the residents do not have equal access to healthy food retailers. In most areas residents have equal access to food retailers but the quality of the food retailers varies. The quality of food retailers is located according to the socioeconomic status of the neighborhoods. The location of these food retailers can dictate the neighborhoods' dietary behaviors. With the lack of food choices in some areas, fewer healthy food retailers are placed in the disadvantaged areas. The quantity of healthy food in disadvantaged areas varies due to supply and demand. The price of healthier foods could be discouraging and result in a low demand, resulting in an inflation or riddance of that product. Environments that surround communities have the ability to positively or negatively impact the residents because the lack of the neighborhoods' resources can influence the residents' choices. With the lack of transportation and funds, these disadvantaged neighborhoods are predisposed to an environment that will contribute to their decline in health. The purpose of this study is to investigate how the accessibility of neighborhoods to their surrounding food retailers affects the residents' health. Mainstream grocery stores, fringe-retailers, and restaurants vary widely in the availability of healthy foods. Areas with limited access to healthy foods are known as food deserts. U.S. Census data will be used to determine socioeconomic status of residents. GIS software will locate surrounding food retailers. Each retailer will be individually analyzed and mapped to indicate food deserts. The food desert map will be designed to recognize the disadvantaged areas, furthermore,

the maps formulated according to population density and household income will show the distribution of food retailers within the community. Analyzing food deserts from different scopes is important because the environment of the residents differs in each community. Findings are expected to show there will be fewer healthy food sources in disadvantaged communities.

Investigating Environmental Influences on the Morphology and Stable Isotope Changes in a Holocene Peat Deposit from Congaree National Park

Presented at the American Geophysical Union National Fall Meeting, 2011

Supported by the Winthrop University Research Council and a grant from the Dalton Endowment

Student: Nicole Wesselschmidt 2012

Faculty Mentor: Scott Werts, Ph.D.

CAS – Department of Chemistry, Physics and Geology

Congaree National Park, near Columbia, South Carolina, is a floodplain forest that contains the United States' largest contiguous tract of old-growth bottomland forest as well as one of the highest natural canopies that remains on Earth. A portion of the park contains a groundwater fed muckswamp and is in the footprint of several ancient meanders of the Congaree River. Within one ancient meander lies an extensive peat deposit assembled over thousands of years from the formation of an oxbow lake. The aim of this study is to investigate the environmental influences affecting the development of this peat deposit and implications on paleoclimate investigation of the southeastern US since the last ice age. From this deposit, a 3.5 meter long core was extracted with a basal date of 21,000 years before present (kyr). We have sampled this core for $\delta^{13}C$ and $\delta^{15}N$ values in both the bulk peat and in monocot macrofossils which were present through most sections of the entire core. The bulk peat was sampled at key changes in morphology and the monocot samples were taken at 8 cm intervals. This data reveals a sawtooth pattern of variation of about 1‰ throughout the lower two meters (-28.5 to -29.5‰) before a much more negative excursion down to -30‰ in the last half a meter. We have also obtained several radiocarbon dates indicating that the initial oxbow lake filled within approximately 1000 years followed by a depositional hiatus or erosional surface occurring between 10,000 and 20,000 kyr. This was followed by a period of slow peat accumulation through 3500 kyr. In more recent years (<160 yrs), an inorganic lens has developed within the upper 10 cm of the core. Further investigation into this section of the core suggest the possibility of vertical leaching and subsequent removal of organic material from this section. Results from this study have implications in further investigations into carbon cycling and storage within Congaree National Park.

Mixed Messages

Presented at the Winthrop University English Department Undergraduate Research Conference and Creative Showcase, February, 2012

Student: Kimberly Farrier 2012

Faculty Mentor: Sarah Spring, Ph.D.

CAS – Department of English

(WRIT 501 – Spring)

Technology is all around us. We cannot get away from technology, yet at the same time, another obvious issue that leaps off the pages is that everyone has a different opinion about technology. No one can agree; is it helpful? Is it harmful? Do we have enough? Is it too much? The conflicting ideas caused me to start wondering; if these mixed ideas cause confusion among scholars and authors, what kinds of conflicting messages are we sending our children. In sixty seconds, I attempt to show the mixed messages that are being sent to high school students in regards to technology. I do this by showing first how some schools handle outside technology by imposing a strict, “No technology allowed, even during lunch” rule. I then show the confusion felt by the students when they are bombarded with technology as soon as they enter a classroom. I attempt to show that this can confuse students and even cause them to act out by using the classroom technology inappropriately. My goal is to present the problem with the hopes of starting a dialog and through this dialog, a resolution will develop. I hope that my viewers would come away asking the following questions: What message are we sending to our high school children about technology? Are these mixed messages causing a feeling of separation and/or resentment between student and teacher? Is this hindering their learning process? Is there a better way to teach the proper use of technology to our youth? My video can be accessed at: <http://kimberlyfarrier.wordpress.com/concept-in-60-final>

“Imp,” “Elf,” and “Demon Offspring”: Pearl as a Strong-Willed Child in Nathaniel Hawthorne’s *The Scarlet Letter*

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Joanna Tepper 2012

Faculty Mentor: Kelly Richardson, Ph.D.

CAS – Department of English

My essay addresses the role of Pearl within Nathaniel Hawthorne’s *The Scarlet Letter* as opposed to the more commonly addressed Hester Prynne or Arthur Dimmesdale. Within the text itself, Pearl is seen as being “demon offspring,” while outside the text, critics have argued that Pearl is a symbol - the physical embodiment of the scarlet letter. This view of Pearl limits her role in the novel to purely symbolic and more negative rather than as a dynamic human being. In order to correct this one-dimensional view of Pearl, a more reality-based reading of her as a child will address why she acts the way she does. Pearl’s personality traits, her connection to nature, and her willful behavior all contribute to the idea that Pearl is not “demon offspring,” but instead a strong-willed child who is a product of her parents and her unusual environment. Through some investigation of Puritan parenting techniques, an intense close reading of the text, and scholarly research, I found support from a few critics who chose to address Pearl as more than a symbol. These critics still did not address Pearl as a human child, but their viewpoints moved away from Pearl as a physical representation of the scarlet “A.” I then took these ideas a step further and argued that while Pearl is often described as being “elvish” or “demon offspring,” she is actually just a stubborn or strong-willed child who is a product of genetics, her environment, Hester parenting, and lack of a father figure. At the time, Hawthorne unknowingly set up his own nature versus nurture,

genetics versus environment dichotomy in the daughter of Hester Prynne and Arthur Dimmesdale. By viewing Pearl in this light, she is humanized. The whole plot loses some of the mysteriousness and ambiguity, and becomes more real. Therefore, what is often considered a philosophical romance turns into a more realistic representation of a love affair which results in a strong-willed child.

Split Personalities: Visual Imagery of the New Woman in Nationalist China

Presented at College of Visual and Performing Arts Emerging Scholars Symposium, February, 2012

Student: Danielle Donnelly 2010

Faculty Mentor: Karen Stock, Ph.D.

CVPA – Department of Fine Arts

New Woman imagery, in both high and low culture, altered conceptions of femininity during the Nationalist period in China. The influx of Western culture and fall of the Qing dynasty in 1911 left the Chinese people with a confused cultural identity as the new elements of the West replaced tradition. Women in particular were affected by this change, for their Western counterparts now represented modernity. In addition to this cultural shift, there was a rise in the national spirit following a political movement by intellectuals which contributed to the ideal of the “New Woman.” The New Woman was expected to contribute to the nationalistic spirit by acting in ways that would improve China’s socio-political landscape. Images of the New Woman, however, directly contradict its concept; women are presented in imagery of this time almost exclusively as objects of commercialization, implying that the idea of a modern woman was not concrete in Chinese minds. The images that appeared depict the conflicting identities available to women, and reveal the intense debates that occurred over the role of women within Chinese society. These images are a reflection of the opinions associated with the shift of women’s roles in “modern” China.

“What They Work, Wot They Not”: Shifting the Focus in Wakefield’s Adaptation of the York Crucifixion Pageant

Presented at Southeastern Medieval Association Meeting, October, 2011

Student: Alexandria Matheny 2012

Faculty Mentor: Josephine Koster, Ph.D.

CAS – Department of English

Based on the historical connection between the York and Wakefield mystery cycles, many critics tend to claim that their Crucifixion pageants are similar. While there are several textual similarities between the two cycles, the idea that Wakefield adapted the York Crucifixion pageant must be explored in light of the fact that the two cycles treat the torturers/soldiers and Christ of the Crucifixion pageants in significantly different ways. I explore the dialogue of the York soldiers and Wakefield torturers, and the effect it has on the audience’s attention on Christ. Next I examine the York and Wakefield pageants’ treatment of Christ and His speech. The treatment of the York soldiers and Christ seems intent on drawing focus away from Christ during the torture scenes, while the change in the Wakefield pageant aims to remedy that loss of focus. My thesis is that the Wakefield Crucifixion pageant loses a great deal by making such changes. The York pageant causes its audience to lose its focus on Christ and identify with the soldiers; by doing so, the moment the audience views Christ upon the cross and hears Him make the appeal for the soldiers’ forgiveness is a moment of guilt and self-reflection. The York pageant manipulates the biblical scene in order to make Christ essentially forgotten amongst the technical detail of the first half of the pageant, yet somehow creates an even more personal and profound impact than Wakefield’s completely Christ-centered pageant.

Synthesis of Sphingosine Kinase 1 Inhibitors By Manipulation of Zone 2

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the South Carolina IDeA Networks of Biomedical Research Excellence Grant from NIH

Student: Jaclyn Hunter 2013

Faculty Mentor: T Christian Grattan, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Sphingosine Kinase 1 (SK1) is an over expressed enzyme in cancer cells and phosphorylates Sphingosine (Sph) into Sphingosine-1-Phosphate (S1P). It has been found that the balance between Sph and S1P play a major role in growth and survival rate of cancer cells. S1P regulates cell proliferation so when the balance is shifted towards S1P the cell's growth and survival rate increases. In a normal cell where sphingosine concentrations are higher than that of S1P the cell is able to undergo a natural cell death. In most cancer cells, however, the balance is shifted towards S1P due to the over expression of SK1 within the cancer cell. When SK1 increase the concentration of S1P it causes the equilibrium to favor cell proliferation instead of natural apoptosis. When there is a greater concentration of S1P than ceramide and sphingosine, the cancer cells grow because of a decrease in natural cell death. If the concentration of S1P can be decreased then cancer treatments can become more effective in killing the targeted cancer cells. Because of this the goal of an SK1 inhibitor is to reduce the activity of SK1 shift the equilibrium in the favor apoptosis. While there are current SK1 inhibitors, many are lipid based and are not site specific to SK1. Researchers have discovered a non-lipid based and site specific SK1 inhibitor. However, this inhibitor it is not orally bioavailable. Our research goal is to synthesize a derivative of the SK1 template inhibitor described above that has a greater oral bioavailability. My specific research goal is to synthesize zone 2 derivatives SK1 inhibitor which may be compared to other SK1 inhibitors.

“I Remember the Maps of the Holy Land”: The Role of Memory in *Waiting for Godot* and *Six Characters in Search of an Author*

Presented at Southern Regional Honors Council Conference, March, 2012 and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Mirielle Smith 2013

Faculty Mentor: Josephine Koster, Ph.D.

CAS – Department of English

Samuel Beckett's *Waiting for Godot* and Luigi Pirandello's *Six Characters in Search of an Author* are two of the defining texts of twentieth century drama, partially because both are unconventional, cerebral examinations of reality and existence. Both plays flirt extensively with what it means to be real and sane, primarily through the role of memory. Beckett's characteristic fragmented and repeated scenes reveal a tortured lack of memory in his characters, which dooms them to continue their cycle of moments infinitely. Pirandello's six characters exist only in their own memories and those of the author who never put them to page, leaving their existence in constant danger. Both set of characters are obsessed with memory—either creating it or avoiding it—and in their desperation inevitably sabotage themselves.

Self-Expression: Music Preference and Body Modification

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Students: Sarah Wannamaker 2013, **Michael Blanton**, and **Phylcia Burley**

Faculty Mentor: Matthew Hayes, Ph.D.

CAS – Department of Psychology

(PSYC 302 – Hayes)

The number of people, adolescents in particular, modifying their bodies has increased dramatically over the past ten years, despite the fact that visible tattoos and piercings are not thought to be a part of mainstream culture in the United States of America. This trend lead us to explore the reasons why people modify their bodies, regardless of associated negative connotations. Though body modifications were previously correlated with risk taking behaviors, recent studies have shifted the perspective, and found them to be psychologically beneficial to individuals who feel a strong need to express uniqueness (Tiggeman & Hopkins 2011). Uniqueness is also related to other aspects of personal and social identity, such as music preference and identification with counterculture. We expected music preference to be a predictor of one's likelihood to have a tattoo or piercing, based on the common theme of uniqueness. Though it is difficult to determine exactly which factors influence a person's enjoyment of a specific genre, research shows that personality, social connotations, and demographics play large roles (Rentfrow, Goldberg & Levitin 2011). Music preference and body modifications are 'modes of expression' that enable one to display uniqueness. Counter culture refers to lifestyles, behavior, and modes of expression that oppose dominant social norms (Roe, 1999). This study investigated the relationship between music preference and body modifications, and examined whether or not counter culture could be a linking factor between the two. We collected data using a survey completed by 90 participants. We intended to measure music preferences, number of tattoos and piercings, as well as reported motivation for getting the modification. Results indicated a significant positive correlation between the preference for Metal music and number of tattoos, as well as a significant negative correlation between Broadway music and number of tattoos, which partially supported our first hypothesis that music preference would be related to body modification. Our second hypothesis, that counter culture identification would be related to body modification, was not supported. There were no significant differences in number of body modification between the two groups (mainstream/counter culture), suggesting that body modifications are no longer taboo in mainstream culture.

Men vs. Women and the Conflict Between Age and Idiocy

Presented at the Longwood University Undergraduate Research Conference in Medieval and Renaissance Studies, March, 2012

Student: Crystal Knappenberger 2012

Faculty Mentor: Josephine Koster, Ph.D.

CAS – Department of English

(ENGL 511 – Koster)

Geoffrey Chaucer magnifies the issue of marriage between the old Januarie and young May in “The Merchant's Tale” of his *Canterbury Tales*. The portrayal of women in medieval England is expressed in the warning-tales of Theophrastus, in *Woman Defamed and Woman Defended* edited by Alcuin Blamires, and in analyses by many other critics. However, Chaucer's respect for women's ease at trickery is lacking in these resources. Arguing against the anti-feminist views of the fourteenth century and analyzing Chaucer's appraisal of women's slyness in

their marriage, I prove how Chaucer thought men, especially ones similar to Januarie, were metaphorically blind in their ways of life and that women were the smart beings in the marriage. I chose this topic because the age difference in Chaucer's tales intrigued me, and because the ways that wives acted upon their sticky situation but never were chastised seemed peculiar. I show how men have no knowledge of the desires, wants, or thoughts of women, even when they are around women constantly. By allowing women to cuckold their hopeless husbands and easily talk their way out of punishment, Chaucer is able to express his respect for women. I demonstrate how Chaucer believes women to be much more deserving of honor and praise for their smart levelheadedness than they currently are given during his time.

Passion, Obsession, Seduction: As I Build My Library...

Presented at the Winthrop University English Department Undergraduate Research Conference, February, 2012

Student: Cayla Eagon 2012 (McNair Scholar)

Faculty Mentor: Jane B. Smith, Ph.D.

CAS – Department of English

(WRIT 351 - Smith)

This creative non-fiction piece offers insight into the pleasures and vexations of being a book-lover. This insight into various reading experiences takes place through a series of novels, poems, and plays from British, American, and world literature. An image of a paperback copy of Matthew Lewis's *The Monk*, with a chapter-by-chapter plot outline scribbled inside the cover and sticky tabs protruding from the pages, conveys the results of reading for a research project. An overview of selected literature from *The Broadview Anthology of Restoration & Early Eighteenth-Century Drama* and *The Anthology of Twentieth-Century British & Irish Poetry* demonstrate how an English major's semester reading allows one to be mentally transported into a variety of happenings from diverse periods. In addition to these joys of reading, the frustrations of not having enough time to read more books is also addressed by describing various novels' first pages as seductive and inviting. Other works consulted for the paper include the *Harry Potter* series, *The Arabian Nights*, *Lolita*, *Love in the Time of Cholera*, and *A Moveable Feast*. Ultimately, this piece seeks to capture the varied experiences of an English major and book-lover.

The Effect of Mental Fatigue on Interpersonal Problem Solving

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Joshua Robertson 2012

Faculty Mentor: Donna Nelson, Ph.D.

CAS – Department of Psychology

Our project examined factors that may inhibit effective problem solving in interpersonal contexts. An extensive body of research indicates that depression is associated with deficits in social problem solving (e.g., Marx, Williams & Claridge, 1992; Pollock & Williams, 1998). The experience of negative emotions (such as sadness) has been linked to a narrowing of attention and reduction in flexible thinking (Davis & Nolen-Hoeksema, 2000). This reduction in flexible thinking may account for the aforementioned deficits in problem solving. We wondered whether the experience of mental fatigue would produce similar deficits. Webster, Richter, & Kruglanski (1996) demonstrated that mental fatigue promoted a need for cognitive closure, less effortful information processing and biased social judgments. If mental fatigue inhibits cognitive processing and encourages a closed-minded approach to

information, it follows that it may also be linked to ineffective social problem solving. We conducted an experiment to test these ideas. Participants completed an exercise shown in past research (Nelson, Klein & Irvin, 2003) to induce high or low levels of mental fatigue. Next, they completed the modified version of the *Means-End Problem Solving Test* (Marx, Williams & Claridge, 1992). This test required respondents to read a set of four social scenarios, each describing an interpersonal problem. Each scenario began with a protagonist facing an undesired social situation and then gave a desired goal or end to the story. Participants were instructed that it was their job to develop a middle portion of the story that would enable the protagonist to reach the desired end-point. We expected that participants experiencing low levels of mental fatigue would generate more relevant steps to solve the social problems as well as more effective solutions to the problems, compared to participants experiencing high levels of mental fatigue.

Analysis of Endomycorrhizal Fungal Spores at Elevated Temperatures from Semi-Arid Arizona Soils; Applications to Geoarcheology

Presented by Henry White and Charles Adams (University of Arizona) at the American Geophysical Union National Fall Meeting, 2011

Supported by the Winthrop University Research Council and a grant from the Dalton Endowment

Student: Henry White 2012

Faculty Mentor: Scott Werts, Ph.D.

CAS – Department of Chemistry, Physics and Geology

The objective of this study is to investigate the elemental structure of endomycorrhizal fungal spores at temperatures up to 500°C in hopes of establishing a correlation between elemental abundances and fire temperature. Prior research of endomycorrhizal spores from a deciduous forest in Maryland has shown that these spores are structurally resistant to high temperatures and show an increase in the percentage of silicon and aluminum when exposed to increasing temperatures. In this study, we are attempting to investigate whether a similar trend is present in endomycorrhizal fungal spores from arid environments and to possibly apply these results to archeological studies. In the high plains of Arizona, there are numerous archeological sites in which structures from Hopi settlements burned in the 14th century. The potential causes of these fires are still being debated. We collected samples from a structure within Homolovi State Park that was burned in 2006 and designed to simulate these fire events. Samples were collected at 1 cm intervals within individual burned layers in order to investigate any potential changes in chemistry due to changing temperature during the fire. Several of these samples were analyzed in a Scanning Electron Microscope (SEM) coupled with Energy-dispersive X-ray Spectroscopy (EDS) to gain insight into their elemental composition. These samples were compared to the elemental composition of modern fungal spores collected from the same area which were burned at increasing temperatures up to 500°C within the laboratory. Results from this study have implications in the development of a post-fire temperature proxy in both modern and archeological settings.

Sex or No Sex? A Study of Malory's Language Choices in *Le Morte Darthur*

Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012

Student: Crystal Knappenberger 2012

Faculty Mentor: Josephine Koster, Ph.D.

CAS – Department of English

(ENGL 512 – Koster)

Sir Thomas Malory's *Le Morte Darthur* has creative style that confuses the reader into being unable to determine if its two main characters, the knight Lancelot and Queen Guinevere, had an affair. Critics such as E. Kay Harris, Charles Moorman, and Herbert Moller study the relationship between the two characters. Harris expresses in her essay "Evidence Against Lancelot and Guinevere in Malory's *Morte Darthur*: Treason by Imagination" that the affair between the two was a false accusation regarding information in the text. Moorman and Moller write about courtly love and knighthood in the medieval England to show how this knight and queen were obeying their duties as per the code of love and honor. However, Malory's exploitation of ambiguous word choice is missing from their analyses. In my paper, I establish that there is not enough evidence in Malory's text to claim that Lancelot and Guinevere had an affair, as well as there is not enough evidence to argue that they did not. I prove this point with textual evidence and study the etymologies of words Malory uses and does not use when writing about how Lancelot spends his time with Guinevere and Elaine. I chose to argue this point to illustrate how Malory changes the legend of King Arthur in order to demonstrate his love for the legend and his country while giving his readers role models. By ambiguously wording Lancelot and Guinevere's meetings with one another, Malory was able to express that the two were pure at heart and therefore have the right to be honored, not hated.

Determination of *Clostridium Papyrosolvens* C71 XYLANASE: Molecular Replacement Using Homology Models

Presented at the South Carolina IDeA Networks of Biomedical
Research Excellence Annual Meeting, March, 2012

Student: J. Kennon Smith 2012

Faculty Mentor: Jason Hurlbert, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

The enzyme CpC71 is a xylanase belonging to Glycosyl Hydrolase (GH) Family 30 cloned from the anaerobic bacterium *Clostridium papyrosolvens*. This enzyme has the ability to bind and hydrolyze beta-1,4-xylan chains bearing arabinose and glucuronic acid substitutions. This feature makes the enzyme of potential value in biocatalytic processes designed to breakdown woody biomass and agricultural waste for conversion to ethanol. The enzyme is only the third xylanase of family GH30 characterized structurally, and previously described structures of *Erwinia chrysanthemi* Xylanase A (XynA) and *Bacillus subtilis* Xylanase C (XynC) are specific to 4-O-methylglucuronate (MeGA) substitutions (PDB entries: 1NOF and 3GTN, respectively), with little tolerance for arabinose substitutions. CpC71's novel specificity garners particular interest in solving the enzyme's structure to determine differences in its binding mechanism. The primary focus of our work was to produce a viable initial molecular replacement (MR) phasing solution for the enzyme using lowest energy homology models. We have previously created homology models of CpC71 using an approach involving two different computational algorithms and used the top five models generated in the phasing process to obtain an initial MR solution. The structure was solved to 2.01 angstroms and the active site was compared to those of XynA and XynC. Structural data indicate three primary

mutations to the arabinose-binding subsite along the β 8- α 8 loop. This initial structure will serve as a basis for mutagenic and functional studies to investigate the role of the putative arabinose binding subsite in the enzyme.

Examining the Colorimetric and Calorimetric Properties of Various Copper (I) Complexes

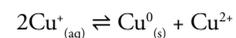
Presented at the Noyce Scholars Southeastern Conference, February, 2012

Students: Destinee Johnson 2014 (WISE Scholar)
and **Sharon Jenkins** 2011 (WISE Scholar)

Faculty Mentor: Nicholas Grossoehme, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Copper is a transition metal capable of converting between the oxidized (Cu^{2+}) and reduced (Cu^+) states. This characteristic of copper makes it an important electron transporter, a redox co-factor for a variety of enzymes, and a virulence factor for numerous pathogens. Copper (I) is the physiologically relevant oxidation state; however, most experiments have been conducted *in vitro* on copper (II) due to the unstable nature of copper (I). Strict anaerobic conditions are necessary for work with this oxidation state due to O_2 dependent spontaneous oxidation of copper (I) to copper (II). Copper (I) undergoes a disproportionation reaction which causes a thousand-fold increase in copper (II) in solution as compared to copper (I).



In this process, copper is capable of acting as its own oxidizing and reducing agent so a stabilizing ligand is required in order to maintain the copper (I) oxidation state in solution. These challenges were overcome by manipulating copper under strictly anaerobic conditions with acetonitrile (MeCN) added to stabilize the copper (I) oxidation state. Isothermal titration calorimetry was used to measure equilibrium constants and enthalpy values for N-acetyl cysteine (NAC) binding to the copper (I)-MeCN complex. This binding event was also monitored spectrophotometrically to verify the calorimetric data; excellent agreement between the data is observed. We further tested this stabilization system by exploring the thermodynamic driving forces associated with copper (I) binding to the common high affinity copper-binding chromophores bathocuproine disulfonate (BCS) and bicinehonic acid (BCA). Both of these ligands bound with the expected 2:1 (ligand:metal) stoichiometry, as determined spectrophotometrically and calorimetrically. However, we unexpectedly observed a step-wise binding profile for both ligands by ITC. These data are consistent with a model in which each ligand binding event contributes equally to the spectroscopic absorbance profile. This hypothesis is currently being tested.

Catch-22: A Postcolonial Perspective

Presented at the Winthrop University English Department Undergraduate Research Conference
and Creative Showcase, February, 2012

Student: Allison Howard 2012

Faculty Mentor: Leslie Bickford, Ph.D.

CAS – Department of English

This essay examines Joseph Heller's World War II novel *Catch-22* through a postcolonial lens. Colonization depends upon the belief that there are individuals or societies in the world who deserve power, and conversely, that there are individuals and societies in the world who do not; that there are superior and inferior ideologies and lifestyles; that there is a "correct" and an "incorrect" political and economic system; and that the fundamental difference between the deserving and the undeserving, the superior and the inferior, the

correct and incorrect, is “civilization.” As a prime example of colonialist attitudes, Joseph Heller’s *Catch-22* depicts General Peckem as he coldly snaps to Colonel Scheisskopf, “People have a right to do anything that’s not forbidden by law” (321). There exist no laws against war, against colonization, or against war as a tool of colonization. Joseph Heller’s *Catch-22* stands as a postcolonial critique of the use of war as a tool for colonial imposition, demonstrated by colonialist attitudes held within the American military in the novel, the exertions of a colonial sense of power over both women and nonmilitary civilians, and the main character, Yossarian’s, final decision to desert the army as an expression of his newfound ethical responsibility. Specifically, this essay highlights Heller’s use of characterization, setting, mood, and tone throughout the novel in order to portray Heller’s argument that not only is war graphically dehumanizing in all of its destructive power, but also an unconventional tool of colonization. The totalitarian military machinery Heller depicts effectively summarizes the truth about colonialism: it is an arbitrary extension of power used to terrorize, degrade, and disfigure others for nonsensical and irrational reasons. Heller’s protagonist, Yossarian, defies traditional expectations and defines a new sort of bravery, responsibility, and courage, blazing a trail that others will hopefully follow.

Feminine Trumps Masculine: Gendered Power Struggles in *Harry Potter* Revealed Through Mythology

Presented at UNCC PotterWatch, October, 2011

Student: Edward A. Szeman 2012

Faculty Mentor: Leslie Bickford, Ph.D.

CAS – Department of English

Secular discussions of the *Harry Potter* series have tended to focus on conflicts between religion and magic. As the series ekes further into academic discourse, focus has necessarily shifted to discussions about the nature of good/evil, materialism/minimalism, as well as racial purity, class stratification, and character morality. However, 21st Century sensibilities, debates over whether or not the novels were targeted at boys and the recent revelation of homosexual characters in the series have brought gender binaries to the forefront. Thus the questions often become: do male characters possess greater power than female? What power do female characters possess? Which female characters exert the greatest influence in the series? In response I develop an argument asserting that female characters in *Harry Potter* exert greater influence over the outcome of the story than do their male counterparts. Additionally, the powers they command are often non-magical and passive in nature (not of the wand brandishing variety), which supports notions of Rowling’s series favoring non-violent masculine and feminine powers over their violent counterparts. My research has made exhaustive use of the primary *Harry Potter* texts, as well as supplementary texts from classical and mythological writings (the *Odyssey*, the *Iliad* and the *Divine Comedy*) with which I support my argument for feminine over masculine power as the driving force of the novel. The conclusions I have drawn are that, while violent masculine-powers tend to offset each other, non-violent feminine-powers (often non-magical) tend to subvert the masculine. Thus, while the greatest wizards are undoubtedly men (ie: Voldemort, Dumbledore, and Harry), female characters exert more force over the unfolding of events (ie: Lily Potter, Narcissa Malfoy, and Molly Weasley). The comparison of Rowling’s female characters with classical literature and mythical characters (Penelope, Thetis, Beatrice, and the Virgin Mary) along with primary textual evidence from the novels themselves support this conclusion. Finally, I believe the significance of this argument is that it demands greater consideration for feminine power and its influence on the series. Often heralded as a novel keyed to adolescent males, it is time to recognize Rowling’s *Harry Potter* series as equally well suited for female adolescents.

Adults’ Perceptions of the Double Standard for Heterosexuals and Homosexuals

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Student: Daniel L. Selvey 2012 (McNair Scholar)

Faculty Mentor: Merry J. Sleight, Ph.D.

CAS – Department of Psychology

Previous research established a double standard, the concept that sexual freedom is more acceptable in men than women (Gentry, 1998). This study contributes to existing scholarship by examining sexual expectations for homosexual and heterosexual men and women. Over 100 participants randomly responded to one of four questionnaires depicting sexual vignettes and asking participants to evaluate the normalcy and appropriateness of the behaviors. Participants also completed an assessment of perceptions of the sexual double standard (Muehlenhard & Quackenbush, 1991). Participants felt that being chaste was more normal for homosexual men than other men. Participants also saw chaste behavior as more appropriate than high levels of sexual activity for both homosexual and heterosexual men. Participants similarly approved of chaste behavior for women, finding it especially appropriate for heterosexual women. On the SDS Scale, male participants earned a mean score of 8.25 (SD = 4.10), and female participants earned a mean score of 7.14 (SD = 3.12). These scores on the SDS Scale are lower than norms developed for this scale two decades ago, indicating a decrease in overall acceptance of the double standard. In other words, today’s young adults may view the sexual behavior of men and women similarly. Our results further suggest that young adults prefer everyone to be chaste.

Young Adults’ Willingness to Help and Perceptions of Nonprofit Organizations

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Student: Allison Howard 2012

Faculty Mentor: Donna Nelson, Ph.D.

CAS – Department Psychology
(PSYC 302 – Sleight)

Most nonprofit organizations model altruistic behavior (unselfish helping) aimed at meeting the needs of vulnerable populations. Psychologists have examined predictors of helping behavior. Relevant work indicates that a sense of social justice and cohesion with one’s environment predicts helping (Haski-Leventhal, 2009). In addition, Darley et al. (2002) found that priming participants to imagine themselves either in a group or alone influenced their willingness to help. We extended this work by examining whether priming about past helping experiences would influence perceptions of nonprofit organizations and willingness to offer unselfish help. We also explored whether young adults generally have positive perceptions of nonprofit organizations, and how this relates to altruistic behavior. We hypothesized that participants primed with positive memories of helping behavior (compared to negative memories or no prime) would report more favorable perceptions of nonprofit organizations and exhibit more willingness to offer unselfish help. We also hypothesized that in general, young adults would tend to report favorable attitudes about nonprofit organizations, and that those with the most positive attitudes would be the most altruistic themselves. We randomly assigned college students (33 men, 62 women) to one of four priming conditions. One group of participants (n = 24) reflected on a time in which they had given help to someone else, another group (n = 24) reflected on a time in which they had received help, the third group (n = 24) reflected on a time in which they had been denied help and a control group (n = 23) received no prime. Participants then completed a

survey designed to assess their perceptions of nonprofit organizations. Afterwards, we asked participants whether they would be willing to help the experimenter by taking part in another research activity, although no personal benefits were offered. Results revealed that participants in general had positive perceptions of nonprofit organizations, $M = 3.63$ ($SD = .48$). We also found that participants who possessed positive attitudes about nonprofit organizations were more likely to help the researcher, $t(93) = 1.95$, $p = .05$. In addition, results showed that positive perceptions of nonprofit organizations positively correlated with the amount of time participants reported performing community service, $r = .22$, $p < .05$, and positive perceptions of altruism, $r = .65$, $p < .01$. No differences in perceptions of nonprofit organizations or willingness to help were found as a function of the priming conditions. In sum, our hypotheses were partially supported. Young adults had positive perceptions of nonprofit organizations, and those perceptions were associated with a willingness to help others. This provides evidence for consistency between attitudes and behaviors related to helping others. We did not find a priming effect, perhaps indicating that these attitudes and behaviors are relatively stable over time.

Controlling the Beast: Masculinity in the Harry Potter Series

Presented at PotterWatch Conference, University of North Carolina Charlotte, October, 2011

Student: Joanna Tepper 2012

Faculty Mentor: Leslie Bickford, Ph.D.

CAS – Department of English

In the Harry Potter series, the roles of Sirius Black and Remus Lupin are drastically different. Sirius is the strong aggressive and rash godfather Harry looks up to, and Lupin is the nonviolent but powerful logic-driven Defense Against the Dark Arts professor. These two characters play a dramatic role in Harry's coming of age - in Harry's decision of what type of man he will grow up to be. Will he be rash and quick to seek revenge, easy to anger, and stir crazy, or will he control the animal within him, teach others, think things through, and make the right decision in the end? Which of Harry's father's two best friends from his days at Hogwarts is the better father figure and role model for Harry until he matures and grows into the man who must face Voldemort alone? In the end, Harry must set aside the desire for strong aggressive masculinity and instead choose nonviolent but powerful masculinity. For Harry, it is deciding how close to the line between good and evil he is willing to go. I will argue that Lupin is a better role model and mentor for Harry than Sirius, but Lupin is often overlooked by Harry because he is nonviolent. At the same time, both Sirius and Lupin serve as a reminder of the past and both men provide an insight into James Potter that Harry needs to understand who his father was and what kind of man Harry will become. After Harry's coming of age, he portrays the perfect balance between aggressive and nonviolent behavior, growing into the man he needs to be to face his future and go willing to his death - no longer "the Boy Who Lived," but rather "the Chosen One," a man who willingly and knowingly sacrifices himself for those he loves, like Sirius, Lupin, and James all did for Harry.

Workshop to Writing Center: Integrating Creative Writing in Academic Centers

Presented at the Southeast Writing Center Association Conference, February, 2012

Student: Edward A. Szeman 2012

Faculty Mentor: Jane B. Smith, Ph.D.

CAS – Department of English

(WRIT 500 – Smith)

My research addresses the issue of the absence of creative writing in writing centers and the privileging of academic over more personal, creative writing. I present two types of evidence to support my assertion that creative writing is overlooked in writing centers: (1) lack of research and attention to creative writing in writing centers (as revealed through my sparse academic findings on the subject), (2) the dominant ideas of academics regarding writing centers. Drawn from writing center texts and rubrics for academic grading, this evidence supports the notion that creative writing does not fit neatly into writing center curricula and has thus been ignored (even avoided) in many writing centers. It also shows that creative writing is often confined to workshops and is not a "type" of academic writing widely regarded as important. I further identify four factors that have restricted creative writing in the writing center: (1) professors' emphases on grammatical correctness and formatted styles, (2) restrictive standards for academic discourse as it relates to style, voice, tone, and diction, (3) lack of tutor training to handle creative forms, and (4) student held beliefs that writing centers have nothing to offer creative writers. Additional evidence is experiential, citing examples from groups of Winthrop students who have set up student led workshops and readings for creative writing, effectively establishing a community of writers to support one another in the way a writing center might and should. Statements from Winthrop students also show that few enough of them have been encouraged to take their creative writing to the writing center, and fewer still have done it. My presentation concludes by explaining the importance of creative writing relative to traditional academic discourse, as well as many other disciplines that rely on creative writing and creative writing strategies, and offers different tutoring strategies that could be adopted to accommodate such writing in academic settings.

The Algebraic Structure of Jukes-Cantor Varieties

Presented at the 18th Annual SAEOPP McNair/SSS Scholars Research Conference, June, 2011

Awarded First Place in the Oral Presentation Competition, Physical Sciences Category

Student: Michael Capps (McNair Scholar)

Faculty Mentor: Joseph Rusinko, Ph.D.

CAS – Department of Mathematics

The Jukes-Cantor model is common method for determining the the distance between diverged DNA sequences. If a particular phylogenetic tree accurately represents the relationships among the taxa then the sequence data should satisfy a set of equations. After an appropriate change of coordinates, the solution set to these equations forms a toric variety. This toric variety may be understood in terms of a corresponding polytope which encapsulates the data of the toric variety. Using the Jukes-Cantor model and tools from algebraic geometry, we examine one particular variety and describe new properties of its underlying structure.

Synthesis and Evaluation of Potential Amyloid-beta Aggregation Inhibitors

Presented at the 63rd Southeast Regional Meeting of the American Chemical Society, October 2011

Supported by National Center for Research Resources (5 P20 RR016461) and the National Institute of General Medical Sciences (8 P20 GM103499) from the NIH

Student: Craig B. Stevens 2013

Faculty Mentor: Robin K. Lammi, Ph.D. and James M. Hanna, Jr., Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Amyloid-beta ($A\beta$) is a protein found in human brain plasma and cerebrospinal fluid comprised of 39-43 amino acids. It is known to assemble into fibrils contg. beta-sheet structure, which are the primary component of the extracellular senile plaques characteristic of Alzheimer's disease. It may be therapeutic to inhibit the aggregation of $A\beta$ so as to block fibril formation. Natural arom. mols. such as resveratrol and curcumin have been shown to inhibit $A\beta$ aggregation. We have synthesized four potential inhibitors - the para- (PTT), meta- (MTT) and ortho- (OTT) isomers of terphenyl-3,3'',4,4''-tetrol and biphenyl-3,3',4,4'-tetrol (BPT). Each mol. contains terminal hydroxy groups to enable hydrogen bonding, and each terphenyl has a semi-rigid linker section. The inhibitors were evaluated using the Congo red spectral shift assay, with incubation and shaking of the $A\beta$. Congo red (CR) binds selectively to $A\beta$ contg. beta-sheet secondary structure, resulting in a red shift of its absorbance spectrum. Starting with monomeric $A\beta$, the aggregation profile is tracked by measuring the CR spectral shift at specific time intervals, thus enabling quantification of aggregation. Time courses of $A\beta$ aggregation in the presence of inhibitor are compared to those for $A\beta$ alone to det. the extent of inhibition. Of the three terphenyls, OTT is most efficacious, abrogating aggregation when present in excess (10 molar equivalents). The biphenyl BPT is more successful than any of the terphenyl compds., providing complete inhibition at one molar equivalent, and dose-dependent inhibition at sub-stoichiometric concns. Future work will focus on the synthesis and characterization of related biphenyl tetrols.

Personality Profile: Personality and Life Satisfaction Composing Facebook Interaction

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Student: Daven Johnson

Faculty Mentor: Julianna Khoury, Ph.D.

CAS – Department of Psychology
(PSYC 302 – Hayes)

Social Media are slowly becoming more prevalent in today's society, allowing people to communicate and connect with one another (Ross et al., 2010). Facebook is a popular social networking site with multiple features such as instant messenger, games, photo albums, videos, etc. Previous research (Orr et al., 2009) has found that a person's Facebook page is a reflection of his/her personality. Our study extends Orr et. al.'s research by exploring whether personality and life satisfaction affect Facebook interaction by dividing the construct of Facebook interaction into multiple aspects: number of Facebook friends the individual has, time spent on Facebook, how important Facebook was to the individual, an individual's specific use for Facebook (i.e. to look at pictures, play games, band promotion, etc.), and how friendsick the individual was. Our main hypothesis was that extraversion and high life satisfaction would negatively correlate with extended Facebook interaction. Data was

collected from 83 Winthrop University undergraduate students (29 males, 53 females, 1 did not respond) by survey. The survey was constructed using three different scales measuring personality (John & Srivastava, 1999), life satisfaction, (Deiner, Emmons, Larsen, & Griffin, 1985), and Facebook interaction (Ellison, Lampe & Steinfeld, 2007). A correlation analysis was performed on the extraversion, life satisfaction, and the aspects of Facebook interaction data. Our main hypothesis was partially supported because lower extraversion was significantly correlated with lower levels in Facebook interaction. The correlation between extraversion and Facebook interaction was not significant. However, high life satisfaction showed a significant positive correlation on some components of Facebook interaction, such as Facebook Importance. This relationship contradicted our hypothesis that people with low life satisfaction were more likely to use Facebook. High life satisfaction and Facebook interaction based on friend sickness also showed a significant correlation. Our results indicate that personality and life satisfaction affect some aspects of Facebook interaction but not all. Furthermore, these results suggest that Facebook interaction is not a homogeneous construct. Instead, it has multiple aspects that respond independently to other factors, indicating that social media has to be divided into multiple aspects to be accurately understood.

The Influence of Religiosity/Spirituality on the Health Risk Behaviors in Children and Adolescents

Presented at 17th Annual SAEOPP McNair/SSS Scholars Research Conference, June, 2011

Students: Dedra C. Darby 2012 (McNair Scholar)

Faculty Mentor: Shebby Neely-Goodwin, Ph.D.

CAS – Department of Social Work

Researchers know little about how involvement in religious activities protects at-risk youth from substance use (Sim, 2005). Therefore, this study will focus on whether or not the decisions in adolescents' health risk behaviors are influenced by religion and spirituality. The following questions will be used to evaluate the level of influence: Does religion influence adolescents' decisions to participate in risky behaviors? Does religion influence adolescents' decisions not to participate in risky behaviors? Does spirituality influence adolescents' decisions to participate in risky behaviors? Does spirituality influence adolescents' decisions to participate in risky behaviors? This study was an exploratory study with a mix design of qualitative and quantitative data. Purposive samplings were conducted on youth at recreational centers and places of worship. This data was obtained to indicate whether adolescents considered their spirituality or religion as moral agents when making decisions concerning risky behaviors. A survey from the CDC (Center for Disease Control) entitled, YRBS (Youth Risk Behavior Survey) was distributed to youths ages 12-17. This survey consisted of 47 closed and open-ended questions and multiple choice questions that were listed under subheading topics such as sexual behavior, alcohol consumption, hard drugs (i.e marijuana), higher power(s), religion, and spirituality. Because of their moral duties to their religion and spirituality, adolescents are expected to be more inclined to refrain from health risk behaviors. Findings of this research study were that adolescents who utilized their religion and spirituality in their everyday decision making processes revealed reductions in their choices to participate in risky health behaviors such as sexual intercourse, alcohol, and substance abuse activities.

Structures and Dynamics in Abeta Dimers: Effects of Zinc Binding and Chelation

Presented at the Southeast Regional Meeting of the American Chemical Society, October 2011

Supported by the National Science Foundation (NSF) Grant CHE-0848824

Student: Rebecca Mitchum 2012, **Iris Strzyzewski, Emily Amenson,**
and **Abigail Bradner**

Faculty Mentor: Robin Lammi, Ph.D.

CAS – Department of Chemistry, Physics and Geology

Alzheimer's disease (AD) is causally linked to the self-association of amyloid-beta peptide (Abeta), a small protein of 39-43 amino acids. Historically, the Abeta fibrils found in extracellular senile plaques were thought to be the pathogenic agents; however, recent evidence suggests that Abeta oligomers as small as dimers are more closely linked to disease progression. We have employed Förster resonance energy transfer (FRET) measurements to probe structures and dynamics in dimers of Abeta40. Results for single, surface-tethered dimers reveal two characteristic FRET efficiencies, perhaps indicative of two preferred dimer structures; these values are confirmed by fluorescence lifetime measurements in bulk solution. Here, we report comparative studies in the absence and presence of zinc, which is thought to promote Abeta oligomer formation at synapses. The effects of the zinc chelator clioquinol in reversing zinc-induced structural change will also be discussed.

Perceptions of Parenting

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: Kierra James and Lindsey Scoggins

Faculty Mentor: Matthew Hayes, Ph.D.

CAS – Department of Psychology

(PSYC 302 – Hayes)

The present research examined whether parenting style is implicitly acquired and if this makes one view the parenting style one is accustomed with as superior to that of others, especially others of different races. We had two hypotheses. The first hypothesis, based on Baumrind (1972), was that Black participants would have more of an authoritarian upbringing while White participants would report an authoritative upbringing. This hypothesis was evaluated through a parenting style questionnaire (Buri, 1991). Our second hypothesis was that participants would view parenting by those of a different race as significantly worse than parenting by those of the same race, even when the parenting style was the same. This hypothesis was evaluated using a series of vignettes portraying authoritarian, authoritative, and permissive parenting by a White or Black parent. Participants rated the effectiveness of the parenting portrayed in each vignette. Ultimately, both hypotheses were not supported. Regarding our first hypothesis, White and Black participants reported similar levels of authoritarian and authoritative upbringing, though White participants reported significantly higher permissive parenting. Follow-up analyses revealed that authoritarian and authoritative parenting were significantly correlated for both White and Black participants. Regarding our second hypothesis, the expected three-way Participant Race \times Target Race \times Target Parenting Style interaction was not significant. However, further analysis of our second hypothesis revealed a marginally significant Target Race \times Target Parenting Style interaction, with Black parents rated more effective than White parents when employing authoritative and authoritarian styles. Taken together, these results indicate that authoritative and authoritarian parenting styles may be becoming more related. Also, because Blacks were rated as more effective than Whites when using authoritative and authoritarian parenting styles in the vignettes, the results suggest that the same parenting practices will be perceived as more effective when done by Black parents than when done by White parents.

Die-Hard Fandom, Bias, and Its Influences on Game Perception and Enjoyment in the NBA Game

Presented at the 17th Annual SAEOPP McNair/SSS Scholars Research Conference, June, 2011

Student: Kia Smalls 2013 (McNair Scholar)

Faculty Mentor: Matthew Hayes, Ph.D.

CAS – Department of Psychology

The success and livelihood of the sporting industry depends on fan support. Fans provide the economic fuel to what drives sport. A fan's development and devotion to their team can drive them to both emotional and financial irrationalities hence fan being short for fanatic. Team identification is defined as a fan's psychological connection to a team and research indicates identification can adversely affect a fan's attitudes and actions (Wann, 1999). There are levels to fan identification stemming from low to medium to high. Highly-identified fans are more prone to irrationalities and biases in regards to their team, while lower identified fans are not as attached to the team and more likely to BIRG and CORE. BIRG, basking in reflective glory, is when a fan identifies with their team more during its successes; while CORE, cutting off reflective glory, is the exact opposite. This real-time study of NBA fans during the NBA playoffs investigated the relationship between the intensity of fan identification and its impacts on a fan's perception of games in which their team participated; such as whether a fan viewed a game as fairly officiated or overall enjoyed a game. The preliminary findings show that strong identification has influence on fan's perception of NBA officiating. In a significant amount of cases fans felt games that their team lost were more unfairly officiated as opposed to games they won. Although their perceptions of officiating, win or lose, didn't effect whether they enjoyed the games. Overall, these results indicate that team identification affects fan perception of officiating in games, displaying a level of fan bias. Yet interestingly their bias doesn't lead to an effect on how much they still enjoy watching their team perform despite game outcome, and at no point does identification waver at any level.

He said, She said: Gender Differences in Communication While Sexting

*Presented at Annual Meeting of the Southeastern Psychological Association, LA ,
February, 2012*

Received Psi Chi Regional Research Award

Supported by Winthrop Ronald E. McNair Scholars program

Student: Cecile Gadson 2012 (McNair Scholar)

Faculty Mentor: Tracy Griggs, Ph.D.

CAS – Department of Psychology

National surveys suggest that 80% of young adults have sent or received a sext message (The National Campaign, 2008). The current study focused on communication during sexting—in particular, how differences in interpretation of sext messages might lead to different expectations during face-to-face interactions. We hypothesized that there will be gender differences in participants' ratings of the likelihood that a female sexter will carry out inferred or mentioned sexual activities when sexters meet face to face, and that female participants will report more negative experiences following sexting. *Method* - 104 participants (80% female) between the ages of 18 and 24 completed an online survey about their sexting perceptions and experiences. Participants were randomly assigned to read 1 of 4 sexting scenarios between a male and female, and to answer questions regarding what would likely happen between the sexters when they met up. The scenarios varied by the degree and explicitness of sexual content from low sexual content to highly sexual content plus an explicit photo. *Results* - 76.2% of males and 70.7% of females reported that they sexted. More men

(87.6%) than women (46.6%) agreed that sexting was an indicator of how far someone will go sexually. 64.1% of participants agreed that men and women interpret sexts differently. Finally, 18 participants (7 males and 11 females) reported having a negative experience due to sexting. A 4(Scenario) x 2(Gender) ANOVA, was conducted to test the hypothesis that men would be more likely to expect sexual behaviors to occur between the sexters next time they met face to face and that this would be more likely to occur in scenarios for which sexual intentions were vague or ambiguous rather than explicit. There was a main effect for gender such that males were more likely to rate the female sexter as more serious about carrying out the mentioned/inferred sexual activities ($t=2.12$). *Discussion* - The current study provides general support for the notion that men and women interpret sexting differently, particularly when there is a low degree of sexual explicitness. Findings have implications for policy makers, law enforcement, and for individuals and families with teens who use cell phones.

“Shakespeare’s Use of Sun Imagery in *Richard II*”

*Presented at Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Mary Stevenson 2013

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English

Shakespeare utilizes a lot of imagery throughout his plays, and certain plays tend to use very specific items as the central symbol of the play. Such an example occurs in “The Tragedy of King Richard II” in which the sun-king analogy is developed extensively. The image of the sun used in relation first to King Richard at the beginning and gradually shifting to Bolingbroke as the play progresses shows the concept of kingship that both characters hold and how their ideas shift. As John Wilson summarizes, the play’s “sun imagery... express[es] the splendor of the catastrophe.” This paper argues that the sun imagery throughout the play illustrates Richard’s misconception about his right to power and that it also reflects Bolingbroke’s view that Richard does not know how to manage power and office. The starting point for my argument centers on Richard’s sun-king speech in Act 3, Scene 2. Using that passage as a spring board, I discuss other sun-king passages spoken by both Richard and Bolingbroke and talk about how their ideas change over time. Richard’s view of the kingship changes from faith in his divine right at the beginning of the play to a more pessimistic view in which he concedes defeat. Bolingbroke’s use of the sun imagery mostly centers on mocking Richard’s concept of kingship and making it clear that he (Richard) does not understand effective management of power and office.

The Hedgehog Pathway in the Basal Bilaterian *Isodiametra Pulchra* (Acoelomorpha)

Presented at the 2012 SC-INBRE Scientific Symposium and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the South Carolina IDeA Networks of Biomedical Research Excellence Grant from NIH

Student: Emily Bowie 2012

Faculty Mentor: Julian Smith III, Ph.D.

CAS – Department of Biology

The goal of this work is to characterize the Hedgehog (Hh) pathway in the acoelomorphan species *Isodiametra pulchra*. This organism was chosen because it is one of the most primitive bilaterians, we have access to its transcriptome (unpublished), and it is a completely ciliated animal. This latter feature is important because the primary cilia is known to be an important Hh signaling center during vertebrate development. Using the NCBI protein database,

the unpublished transcriptome for *I.pulchra*, BLAST analysis, and ClustalW alignments to identify possible orthologues, our lab has identified and sequenced genes that code for components of this pathway. We have identified the definitive Hedgehog protein, a Kif7 orthologue, one of three possible candidates for Patched (the Hedgehog receptor), and the most likely candidate for the seven-pass-GPCR family member that acts downstream of Patched, Smoothed. In order to determine whether our choice of Patched orthologue is correct, we propose to take advantage of small-molecule-inhibitor effectson Hh signaling. Cyclopamine is an antagonist of the Hedgehog pathway, whereas Purmorphamine is a pathway agonist. Accordingly, we believe that Patched expression, which is upregulated during Hh activation, will decrease under the influence of Cyclopamine, and increase under the influence of Purmorphamine. We want to use RT-PCR methods to measure Patched expression. To date, we have developed and tested RT primers for Hedgehog and for two “housekeeping” genes (beta-Actin and EF1alpha). We have carried out preliminary titrated exposure experiments to groups of 100 *Isodiametra pulchra* (20 per titration). Groups received one of four treatments: 0.5nmol, 1.0nmol, 5.0nmol, or 10.0nmol concentration of either Cyclopamine or Purmorphamine. The animals that were exposed to Purmorphamine looked healthy, but did seem to have developed more eggs after 24 hours than those in the control group. The animals that were exposed to Cyclopamine showed significant phenotypic changes after 24 hours. The worms were lethargic, shrunken, and had a profoundly deformed epidermis. Subsequent and continued work will include RNA isolation from groups of exposed worms, treated as described above, electron microscopy investigation of exposed worms to compare morphologies, and successful in-situ hybridization to observe Patched expression coupled with RT-PCR to determine Patched expression levels.

A Southern Tradition: The Use of Race in the Political Calculus of Low-Income, White Voters in the South

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Benjamin Nash 2011

Faculty Mentors: Karen Kedrowski, Ph.D. and Chris Van Aller, Ph.D.

CAS – Department of Political Science

(PLSC 490 - Kedrowski and Van Aller)

Over several decades, voters in the American South have shifted party identification and voting patterns from supporting the Democratic Party in general elections to supporting the Republican Party. This shift was the result of a well-executed strategy by the Republican Party elite that used race and cultural issues to divide the white vote in the South despite the fact that the low-income, white voters’ financial interests are better represented by the Democratic Party. This paper reviews how racial attitudes are used in the decision making process of low-income, white Southerners. I use NES survey data from 1992-2004 to test for a correlation between the racial attitudes of low-income white Southern voters, values voters and Republicans nationwide in order to look for evidence of the success of the Republican Party’s strategy. I find that there is a correlation among the racial attitudes of the three groups but that a large number of low-income white Southerners still identify with the Democratic Party, but at much lower levels than low income non-whites.

Neanderthal and Cro-Magnon Natural Resource Utilization

Presented at Big South Undergraduate Research Symposium, Winthrop University, April, 2012 and the South Carolina Anthropology Student Conference, April, 2012.

Student: Rebecca Nolph 2012

Faculty Mentor: Richard Chacon, Ph.D.

CAS – Department of Anthropology

Neanderthals and Cro-Magnons inhabited overlapping territories in Europe and western Asia and occupied similar (and sometimes even the same) ecological habitats during portions of the Paleolithic, coinciding roughly for 10-15,000 years. This paper documents how Neanderthals and Cro-Magnons differed in patterns of natural resource utilization. For example, Neanderthals focused on consuming game that was high in energy content (mostly higher ranked mammals such as reindeer, mammoths, woolly rhinoceros, and other large herbivores). Cro-Magnons had a broader diet that included fish and other marine life. This research reports how at around 30,000 BP, shortly before their disappearance, there are indications of an expansion of the Neanderthal diet to include smaller mammals and even fish. This work also explores the underlying reasons for this shift in diet, such as depletion of the larger game or competition with Cro-Magnons, and proposes a reason for the lack of marine utilization by Neanderthals for thousands of years. Lastly, this research examines how food choice may have impacted the long term survivability of Neanderthals.

Chastity in *The Tempest*

Presented at Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Hana Baron 2013

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English

(ENGL 305 – Fike)

Although multiple scholars have examined the masque scene in act 4, scene 1 of Shakespeare's *The Tempest*, little has been written about the significance of the presence of the goddesses Juno, Iris, and Ceres. Previous criticism of Prospero's masque has stressed the theme of marriage or the presence of mythological figures; for example, David Bevington, Nelson Bushnell, Ernest Gilman, and Faith Nostbakken have all written on one side of this divide or the other. My paper seeks to answer the following question: How do the mythological figures in the masque illustrate Prospero's desire for Miranda to retain her virginity until she enters into a properly "chaste" marriage to Ferdinand? My conclusion is that the presence of Juno, Iris, and Ceres (combined with the absence of Venus and Cupid) demonstrates the values that Prospero wishes to instill in Ferdinand and Miranda: fertility, procreation, hope, and chastity (with chastity in the Early Modern period having a dual significance: virginity before marriage and sexual fidelity after marriage). Accordingly, I argue that chastity and virginity are crucial aspects of marriage and that the masque uses the goddesses to reinforce Prospero's warning about fornication. Although Juno's presence in the masque may generate concern because she engineers the fornication of Dido and Aeneas in *The Aeneid*, book 4, she is her own foil in *The Tempest*—a positive reminder of chastity and a negative exemplum of the perils of premarital sex. Thus, the masque not only reinforces Prospero's stern warning that Ferdinand and Miranda not break Miranda's "virgin knot" before they marry but also serves as a guide to appropriate behavior between husband and wife. Overall, Prospero and the goddesses help guide Ferdinand and Miranda in the right direction to set aside their lust for one another in return for the greater gift of long-term happiness.

Health and Internet

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Jasmine Morgan 2013 (McNair Scholar)

Faculty Mentor: Ameda Manetta, Ph.D.

CAS – Department of Social Work

(SCWK 330 – Manetta)

Maintaining good health is important to the majority of the human population. As a result, several efforts have been made to help lessen the occurrence and severity of various illnesses. One current method involves the computer. Having medical information online can provide many benefits; such as allowing people to successfully diagnose and treat their own conditions at home. Many researchers have explored the topic of health and internet in order to determine if the information online is actually being read and has an impact on people's lives. A review of 15 journal articles concerning the public's use of the internet for health information was summarized. Having health information online is important to research because having facts and statistics can determine if this method of helping people is a waste of time and energy, or is actually benefiting the public. Therefore, the general research question is; does the internet have an effect on health decisions. The methodology of this research will look at an existing database from a study conducted by Princeton Survey Research Associates International for the Pew Internet and American Life Project. The survey was conducted on 2,928 adults aged 18 and older. The current study on health and internet focuses on three questions. The questions used address the issue of if the internet affected a decision about how to treat an illness, changed an approach to maintaining health, and affected a decision about seeing a doctor. This research is ongoing and will be reporting statistical findings from the study.

"Symbols of Perfection: Appropriating Fin'amor in *Pearl* and *Sir Gawain and the Green Knight*"

Presented at the Longwood University Undergraduate Research Conference in Medieval and Renaissance Studies, March, 2012

Student: Sarah E. Beeson 2012

Faculty Mentor: Josephine Koster, Ph.D.

CAS – Department of English

(ENGL 512 - Koster)

In this paper, I use two works by the same poet, *Pearl* and *Sir Gawain and the Green Knight*, in order to show the difference between the messages of a dream vision and a courtly romance. The research presented in this paper discusses that although the Pearl Maiden and Sir Gawain are both associated with symbols of perfection, the pearl and the pentangle respectively, the Pearl Maiden is able to reach a level of perfection that Gawain is not due to her earned grace and salvation while Gawain values his life and the worldly over the spiritual. The medieval audience would have understood Gawain to be someone with whom they could relate to due to his flaws, but the Pearl maiden was someone who they should strive to become. While the pearl is consistent to the Pearl Maiden's behavior, the symbol associated with Gawain changes throughout the poem because he possesses elements of cowardice and covetousness as the poem progresses. Previous critics have commented on the presence of fin'amor in a primarily Christian world as being unacceptable; however, I argue that the Pearl Poet attempts to appropriate fin'amor through his or her literature by contrasting the perfect Pearl Maiden with the imperfect Gawain. My research expands on the present study by commenting that the poet intended to guide medieval society to accept the young, perfect

Pearl Maiden over the chivalrous hero Gawain because the Pearl Maiden's idea of fin'amor is very different from Gawain's in that she holds her love only for Christ. However, Gawain, like the narrator of Pearl, learns from his error and allows his earthly loss to lead to a spiritual gain. In the final analysis, the Pearl Poet shows the medieval audience which character they are similar to and which should be regarded as a model if they wish to obtain eternal salvation.

Alzheimer's Disease: FRET Analysis of Amyloid-Beta Structures

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by the National Science Foundation Grant CHE-0848824

Student: Emily Amenson 2012

Faculty Mentor: Robin Lammi, Ph.D.

CAS – Department of Chemistry, Physics and Geology

Amyloid-beta (Abeta) is a self-associating protein linked to Alzheimer's disease (AD) that contains 39-43 amino acids. Recently, it has been discovered that small oligomers of Abeta such as dimers and trimers are closely correlated to the symptoms and development of AD; however, little is known about their structures. We use Förster Resonance Energy Transfer (FRET) to describe characteristic dimer structures, determining FRET efficiencies (EFRET) between associated donor- and acceptor-labeled peptides. Since they are highly sensitive to inter-dye distance, the determination of characteristic EFRET values allows us to probe for preferred structures in Abeta dimers. By examining single, surface-tethered dimers, one at a time, we are also able to investigate time-dependent changes in EFRET and dimer structure. Thus far, we have found two characteristic EFRET values near 0.38 and 0.58, perhaps representing two preferred dimer structures. Approximately two-thirds of dimers exhibit one characteristic EFRET value; the other one-third show two or more characteristic values, which are likely indicative of structural dynamics. Studies of fluorescence lifetimes in bulk solution are ongoing; these will complement single-dimer results, providing characteristic EFRET values for dimers unaffected by surface tethering. Also, a future study with freely diffusing dimers will provide further characteristic EFRET values.

Suffering And Salvation in the Isenheim Altarpiece

Presented at Southern Regional Honors Conference, March, 2012, and the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Allison W. Raper 2012

Faculty Mentor: Laura Dufresne, Ph.D.

CVPA – Department of Art History

(ARTH 345H – Dufresne)

In 1515, Matthias Grünewald unveiled an uncommonly powerful altarpiece for the monks of the Monastery of Saint Anthony in Isenheim. Created in a region beset with plague, the Isenheim Altarpiece depicted scenes of brutal torture, pain, and suffering coupled with images of sweetness, grace, and tenderness. This research explores image juxtaposition and sixteenth century mysticism combined in a work of paint on wood that uniquely connected with people of the age. The monks of Saint Anthony's Monastery devoted themselves to tending patients suffering from ergotism, a disease that resulted in hallucinations, seizures, and gangrene. In order to create something that could immediately resonate with the patients, Grünewald drew heavily from the popular personal devotions such as the *andachtsbilder*, which emphasized suffering and a more intimate spiritual experience, as well as the mystical writings of Saint Bridget of Sweden. Determining the influences Grünewald drew from when

creating his altarpiece required careful study of the work and its iconography. Among the art historical sources consulted were André Hayum's *Isenheim Altarpiece: God's Medicine and the Painter's Vision*, Craig Harbinson's *The Mirror of the Artist: Northern Renaissance Art in its Historical Context*, and Ruth Mellinkoff's *The Devil at Isenheim: Reflections of Popular Belief in Grünewald's Altarpiece*. In addition, early sixteenth century German mysticism was examined. Finally, the recorded visions of Saint Bridget of Sweden, extremely popular in Europe at the time, proved invaluable for the text that inspired Grünewald's imagery. Unique in Northern Renaissance art, Grünewald's Isenheim Altarpiece opens a window into the suffering patients' responses to the plagues rampaging through Germany. By intentionally including images of exquisite salvation juxtaposed to those of inexplicable suffering, the Isenheim Altarpiece promised the patients ultimate release from their afflictions. Largely forgotten for an age, this against the norm artifact is now regarded by many as the masterwork of German religious painting.

“He Has the Hair of an Angel”: Adjectives Used to Describe Psychology Professors on ratemyprofessors.com

Presented at the Annual Meeting of the Southeastern Psychological Association, February, 2012

Students: Meghan Hawkins 2012, **Heather Griffin** 2012, **Jennifer Parks** 2012, and **Jaclyn Rose** 2012

Faculty Mentor: Darren R. Ritzer, Ph.D.

CAS – Department of Psychology

(PSYC 302 – Ritzer)

Students are increasingly using online resources like Ratemyprofessors.com to help choose classes and professors (Dommeyer, Baum, Hanna & Chapman, 2004; Felton, Koper, Mitchell, & Stinson, 2008). Ratemyprofessors.com allows students to view open-ended comments, rank professors on academic concepts, and even give a professor a “chili pepper” if the professor is physically attractive. Students can evaluate professors on helpfulness, clarity, and easiness, which may aid students in finding the best possible teacher when planning course schedules. Felton, et al (2008) found that, overall, professors receive more positive than negative ratings on Ratemyprofessor.com. Previous research has also found that there are no differences between male and female professors in terms of overall rating (Stuber, Watson, Carle, & Saggs, 2009). Silva, Silva, Quinn, Draper, Cover, and Munoff (2008) found that professors teaching in the United States received more positive comments than professors teaching in Canada suggesting a geographical region difference in ratings. The purpose of the current study was to further explore the type of language used in positive and negative ratings of professors, both men and women, from different geographical regions. While the overall ratings of two professors might be the same, the adjectives used in the rating may serve as differentiating information. Researchers selected the top ten schools from the Northern and Southern regions of the United States based on *U.S. News and World Report*. Two hundred and eight professors (120 men and 138 men) from psychology departments were selected from the top ten universities in each region. In total, 7,982 comments were analyzed. Researchers recorded positive and negative adjectives included in professors' comments. Results revealed that professors teaching at universities in the Southern region of the United States received more positive adjectives than Northern professors, $F(1, 254) = 5.97, (p < .05)$. Additionally, Southern professors had significantly higher overall quality ratings than Northern professors $F(1,254) = 6.60, (p < .05)$. There was not a significant difference between male and female professors in terms of positive adjectives ($F(1,254) = .383, ns$) or negative adjectives ($F(1,227) = .817, ns$). There was not a significant difference between Southern and Northern professors in terms of negative adjectives ($F(1, 237) = .635, ns$). The interaction between gender and geographical region was not significant for positive adjectives ($F(1, 237)$

= .118, *ns*) nor for negative adjectives ($F(1,254) = .229, ns$). Just as previous research has found, there was not a significant difference between male and female professors in terms of overall quality ratings ($F(1,254) = 1.24, ns$). The findings support and expand previous research in terms of geographical differences in professor ratings. Also, the focus on the adjectives used in professor ratings highlights the fact that the type of language used in the ratings may convey important information to the reader. In sum, while there were no differences in negative adjectives across regions, there were differences in positive adjectives. Southern professors receiving significantly more positive adjectives and higher overall ratings may reflect stereotypical Southern politeness on the part of the teachers or Southern politeness on the part of the students rating them. These positive ratings of professors in the Southern region of the U.S. might also partially explain the results of Felton, et al (2008).

The Effects of Neem (*Azadirachta indica*) Extract on the Feeding Behaviors of the Southern Green Stink Bug (*Nezara viridula*)

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Matthew Ryan 2012 (WISE Scholar)

Faculty Mentor: Paula Mitchell, Ph.D.

CAS – Department of Biology

(BIOL 471 – Mitchell)

The southern green stink bug (*Nezara viridula* [L.]) is a major pest across a wide range of economic crops. Insecticides are important in preventing crop losses from these pests. Neem extract, obtained from an Indian tree (*Azadirachta indica*), has been widely studied as an insect antifeedant and can be used in organic farming. Neem has been shown to reduce feeding by tur pod bugs (*Clavigralla scutellaris*), red flour beetles (*Tribolium castaneum*) and Khapra beetles (*Trogoderma granarium*), but the behavioral effects on *Nezara viridula* have not been studied. To determine the effectiveness of neem on the stink bug, individual adult bugs were filmed for 30 minutes on legume pods (*Phaseolus vulgaris* L.) that were coated with an aqueous neem extract solution, a control solution, or a 0.5 concentration solution. The film was then analyzed using Noldus Observer software to determine the differences in behavior between the neem-exposed and control subjects. Behaviors analyzed included feeding, labial dabbing, head bobbing, antennation, walking, cleaning, and the time spent in contact with the bean. Preliminary data suggest that neem extract did have an effect on the southern green stink bug's feeding behavior. There seemed to be a trend of reduced feeding time and less bean contact time, with an increase in cleaning behaviors with the neem treated subjects. The data also suggest that the effectiveness of the 0.5 solution lies on a gradient between the control and 100 percent solution, indicating that strength of solution is a factor. If continued data analysis confirms that feeding was significantly reduced, these results could lead us to conclude that neem extract may be an effective pesticide for farms that wish to maintain an organic status or use a healthier alternative.

“Narratological Projections in Behn’s *Oroonoko*”

Presented at Sigma Tau Delta International Convention, February, 2012

Student: Cayla Eagon 2012 (McNair Scholar)

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English

(ENGL 520 – Fike)

This paper examines parallels between the narrator and the eponymous royal slave in Aphra Behn's novella *Oroonoko*. Both characters endure hardships as a result of being repressed in

a society that attempts to deny them independent identities, therefore creating a doubling effect in which these two characters mirror one another. In order to make this argument, the essay first addresses claims that Behn is the narrator and that the text is autobiographical. Appropriately separating the author from the narrator allows for a better textually relevant study of the narrator void of intentional fallacy. In looking at the descriptions of Oroonoko as a “royal slave,” a “gallant slave,” a “great man,” “the chief actor in this history,” and “the hero, himself, who gave us the whole transactions of his youth,” the reader is able to see Oroonoko through the narrator's subjective perspective. As the narration continues, similarities between the narrator and Oroonoko become apparent: each one endures a type of name crisis, each has lost a father, and each is a storyteller. In viewing each of these characters as storytellers, or authors, it becomes apparent that the narrator usurps Oroonoko's story. Jacqueline Pearson, in “Gender and Narrative in the Fiction of Aphra Behn,” claims that whereas “Male authors fail, female authors gain a control, however ambiguous or contradictory, over literary texts or the world in which they move.” The narrator's control of the narrative itself can be seen as her attempt to rise above her counterpart, with her ultimately becoming his repressor by gaining control of his story.

Death Penalty v. Media

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Student: Neoshia L. Johnson 2013

Faculty Mentor: Douglas L Eckberg, Ph.D.

CAS – Department of Sociology

(SOCL 516 – Eckberg)

This study tested to see if the usage of media, for different periods of time, affected a person's opinions towards the death penalty. There were five independent variables which were the types/forms of media (TV, music, interactive video games, solo video games, and social networks). There were two dependent variables. These were questions that asked if the respondent favored the death penalty in murder cases and in cases of rape and torture. The information was obtained from a survey of a medium size college population. There was no significant relationship between the variables. It appeared that the students were equally likely to agree or disagree with the death penalty regardless of the amount of time spent using the different forms of media. This finding suggests that media is not the direct cause of people favoring the death penalty.

The β -Catenin/Tcf-4 Pathway Regulates High Mobility Group A1 (*HMGAI*)

Expression in Colorectal Cancers

Presented at the Big South Undergraduate Research Symposium, Winthrop University, April, 2012

Supported by NIH grant P20RR04006, 1R15CA137520-01 and NSF grant MCB0542242

Students: J. Amy Deng 2012, **Ashton Brock**, and **Bethany Bush**

Faculty Mentor: Takita Sumter, Ph.D.

CAS – Department of Chemistry, Physics and Geology

High Mobility Group A1 (HMGA1) encodes proteins that act as mediators in viral integration, chromatin modification, neoplastic transformation, and metastatic progression. Because *hmg1* expression is overexpressed in most cancers and has known interactions with several Wnt-responsive genes, we explored the involvement of HMGA1 in Wnt signaling. In adenomatous polyposis coli (*Apc*) (Min/+) mice expressing truncated *Apc*, we observed 9-fold greater HMGA1 mRNA levels relative to mice bearing wild-type *Apc*. HMGA1 protein levels

were also significantly elevated in Apc (Min/+) intestinal tumors. Mutations of Apc occur in most colorectal cancers and are associated with the mobilization of the β -catenin/Tcf-4 transcriptional complex. Sequence analysis of the 5'-flanking sequence of hmg1 identified a functional Tcf-4 binding element (TBEs) that specifically binds Tcf-4 in vitro and in vivo suggesting that hmg1 is a downstream target of the β -catenin/Tcf-4 signaling pathway. These findings will be further substantiated by transcription assays to evaluate the impact of Tcf-4 and β -catenin expression on hmg1 promoter activity. These results confirm previous work identifying hmg1 as a downstream target of β -catenin/Tcf-4 pathway and provide a new target for the development of therapies for the treatment of colorectal cancer.

Understanding the Rogue Taxa Phenomenon in Viral Data Sets

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

*Supported by the South Carolina IDeA Networks of Biomedical
Research Excellence Grant from NIH*

Students: Matthew Neal 2013 and **Jon Hoin** 2012

Faculty Mentors: Joseph Rusinko, Ph.D. and Kristi Westover, Ph.D.

CAS – Department of Mathematics and Department of Biology
(MATH450H and BIO471)

Increased taxon sampling has been proposed to increase accuracy when making phylogenetic estimates. Others argue there is no benefit of increased sampling and as few taxa as possible should be used to reduce computational complexity. If, however, rogue taxa happen to be among the few chosen to include in the analysis, resolving 'true' evolutionary relationships among the taxa may be problematic. Rogue taxa are those whose position in the phylogeny can vary greatly without changing the overall score of a tree. This presentation examines the rogue taxa phenomenon in the construction of phylogenies for viral groups including foot-in-mouth disease virus (FMDV) and the order Mononegavirales. Our examination included within and between serotype comparisons for FMDV and sub-family level comparisons within the Mononegavirales, spanning low to high levels of taxon diversity. Utilizing the neighbor-joining (NJ) and balanced minimal evolution (BME) tree-making algorithms, we constructed 4-taxon phylogenies for and examined whether there was a rogue effect following addition of a fifth taxon. We calculated the frequency of a rogue effect (sister-group mismatches following the addition of the fifth taxon) for each level of taxon diversity represented by the within and between serotype (FMDV) and the between sub-families of the Mononegavirales order. We found statistically significant differences dependent upon the amount of diversity present in the sets of viral taxa used, with an inversely proportional relationship between the amount of diversity and frequency of rogue presence. We will further examine the three data sets to test whether the number of saturated pairwise comparisons or overall nucleotide diversity is correlated with the frequency of rogue errors.

Teens and Internet

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Allison Moulton 2012

Faculty Mentor: Ameda A. Manetta, Ph.D.

CAS – Department of Social Work
(SCWK 330 – Manetta)

Internet use is a very common part of the everyday lives of most teens. There are many issues addressed in this paper concerning internet use among teens. Access of the internet and the amount of time spent on the internet by teenagers was investigated. The next issue discussed is the different types of effects of the internet on teens. Identity and sexuality are other areas of concern addressed. The study then addresses such issues as teens looking for romantic partners, talking with strangers and online risky behaviors. Some other important areas of concern this focused on are the underlying factors that may contribute to unhealthy online behavior and the methods adults can implement to help teens understand positive and healthy ways to use the internet.

The original survey was conducted by Princeton Survey Research Associates International for the Pew Internet and American Life Project. The participants in the study were 935 teens, 886 online teens and 49 offline teens, ranging from 12 to 17 years old and their parents. Although parents were interviewed, the parent interview is not available for this project. It was a nationally representative sample. The surveys were done as telephone interviews using a standard list-assisted random digit dialing methodology. A secondary data analysis using a subsample of 539 adolescents was used in the current research. Data analysis, using chi-squares was conducted and showed statistically significant relationships between the major questions researched. The study also explains the limitations of the current study and suggestions for future research.

“The Dover Cliffs Scene (4.6) in Shakespeare’s *King Lear*: The Poet as Guide Through and Out of Suffering”

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Patrick Bryant 2012

Faculty Mentor: Matthew Fike, Ph.D.

CAS – Department of English
(ENGL 305 – Fike)

The purpose of this paper is to investigate the role of the imagination and the poet's position as facilitator of such imagined experiences. One such experience is found in *King Lear*, act 4, scene 6, in which Edgar successfully dupes Gloucester into believing that he is at the white cliffs of Dover and that he has leaped off the edge. Previous scholars have discussed the theatricality of the scene (Goldberg); the ambiguity of metaphysical knowledge presented by it (Rackin); the binary of destruction/creation (Calderwood); and the possibility of Shakespeare's having modeled the scene after the Renaissance psychiatric practice of curing melancholic patients by subjecting their imagination to their reason—by forcing them to realize the inaccuracies of their beliefs (Schleiner). Through a close reading of the scene and an analysis of the Elizabethan conception of the imagination, I seek to reveal the *process* of the poetic “willing suspension of disbelief” (Coleridge) as well as the *motives* for intentionally inducing that temporary suspension. Ultimately, my conclusion is that Edgar assumes the role of the poet in order successfully to lift Gloucester out of his depression and that consequently, with the “white cliffs” scene, Shakespeare lauds the poet's curative talent so that the play expresses a greater pity for the kind of world that is in need of such a skill.

The Effects of Nutrient Enrichment on Water Quality in Two Carolina Ponds

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Amanda Gobeli 2012

Faculty Mentor: Peter Phillips, Ph.D.

CAS – Department of Environmental Sciences and Studies

(ENVS 495 – Phillips)

Over nourishment of aquatic ecosystems, also known as “eutrophication,” is a serious threat to water quality throughout the Carolinas, the U.S., and the world. Nutrient-rich waste spurs excessive algal growth that threatens the health of biological communities, and one of the most prolific sources of such waste is nitrogen and phosphorus containing fertilizers used in agriculture and lawn maintenance. This study examined water quality in two different ponds: one was located in a housing subdivision and partially bordered by fertilized lawns (Planters), while the other was surrounded by natural vegetation and removed from fertilized land (Brattonsville). Water quality in each pond was evaluated once a week for five weeks via water sample nutrient analysis (to measure total nitrogen, total phosphorus, ammonia, nitrate, and phosphate) and on-site measurements using a Eureka Multiparameter Meter. Results indicate that water quality in the Planters pond is degraded relative to the Brattonsville pond, as evidenced by significantly higher total nitrogen and total phosphorus, as well as elevated conductivity, pH, and turbidity, all of which are characteristic of eutrophication and consequent algal blooms. The contrast between the ponds highlights the importance of managing non-point source pollution, especially nutrient-rich fertilizers, for preventing eutrophication and maintaining water quality.

Facebook and Social Work Education: Implications for Faculty/Student Engagement

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Judith Myers 2012

Faculty Mentor: Wendy S. Campbell, Ph.D.

CAS – Department of Social Work

Social networking is increasingly becoming a way for students and faculty to communicate. This new tool of communication presents both strengths and challenges in terms of social work ethics and educational standards. This presentation will focus on the impact of social networking on student/faculty interactions in social work education. The research question is as follows: “How does the use of Facebook impact student/faculty interactions in social work education?” While there have been some similar studies in other disciplines, the area of social networking and student/faculty interactions in social work education has not been extensively researched. It is hoped that this research will contribute to the growing literature on ways in which Facebook and other similar sites can be instrumental in terms of enhancing communication and connections among faculty and students in higher education. This study is based on a quantitative survey of undergraduate and graduate social work students in the Department of Social Work at Winthrop University. The survey explores the ways in which social networking hinders and/or enhances a student’s overall learning experience and attainment of information related to social justice and human rights. The survey also explores students’ experiences in using Facebook as a way to develop connections with faculty outside of the classroom. The data from the survey will be analyzed using SPSS software. The findings from this research will be important in terms of exploring ways in which social work educators can take advantage of new technology for the purposes of disseminating information and enhancing communication with students. The findings may also be helpful

for incoming social work students in terms of knowing how to navigate social networking sites, reaching out to faculty, and maintaining appropriate professional and ethical boundaries. The hope is that this research will be useful in the navigation of social networking and higher education in the new millennium.

Stress and College Involvement

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: Erika Faison 2012, **Brandi Brenwald**, and **Ari Williams**

Faculty Mentor: Matthew Hayes, Ph.D.

CAS – Department of Psychology

(PSYC 302 - Hayes)

Intra-organizational stress and extra-organizational stress are two categories that describe where stress originates. When people try to cope with stress, they use problem focused, emotional focused, or social support as a strategy to deal with daily hassles. The effectiveness of these strategies depends on a person’s age, gender, and personality attributes. College campuses incorporate most elements of daily hassles and this current study examines how the coping mechanism of social support in the form of college club/organization involvement correlates with stress levels. The demographic made up of 18 male and 67 females whom were racially diverse. Also included were 46% Caucasian, 30% Black, 5% Latino, and 4% identified as “other” nationality. The empirical methodology included a survey with a personality scale, a self perceived stress Likert scale, and the Traditional College Undergraduate Stress Scale. A correlation between self perceived stress and elements of club involvement such as meetings per week significantly correlated. There was a negative correlation between the personality facet openness and hours involved in club activity. Personality heavily correlated with self perceived Stress Line and CUSS Score accounting for 25% of the variance. The findings imply personality heavily determines ability to cope with stress and how one uses social support to increase or decrease stress levels.

Muslim Americans: Valued Voters?

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Timothy C. Kroboth 2012

Faculty Mentors: Karen Kedrowski, Ph.D. and Christopher Van Aller, Ph.D.

CAS – Department of Political Science

(PLSC 490 – Kedrowski and Van Aller)

Although Muslim Americans are becoming increasingly visible and are projected to surpass Jewish Americans as the second-largest religious population in the United States within the next decade, very little is known of their political perspectives and voting patterns. A limited number of opinion polls and political science papers specific to Muslim Americans have established basic correlations regarding party choice and some policy issues. However, the existing literature fails to address Muslim Americans’ underlying reasons for their seemingly contradictory political stances. This gap necessitates a thorough critique of previous studies and surveys of Muslim Americans. Political scientists seeking to understand Muslim American political trends must develop a hierarchy of policy issues and cultural factors that shape the political perspectives of Muslim Americans. Moreover, most previous papers contradict each other thoroughly, due to numerous challenges that are unique to studying Muslim Americans, such as their great ethnic and doctrinal diversity and also the wave of Islamophobia in the wake of September 11, 2001, which decreased Muslim Americans’

willingness to participate in survey-based studies. However, by formulating a ranking of policy priorities among Muslim Americans and through utilizing multi-pronged polling methods, future studies can achieve a comprehensive understanding of this important religious minority group.

Four Poems on Masculinity

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Alexander Muller 2014

Faculty Mentor: Evelyne Weeks

CAS – Department of English

The four pieces of poetry in this collection deal with various themes of masculinity. The first piece, “Dinner, Lover,” explores sexual masculinity, likening the male libido to a carnivorous fixation. This poem utilizes rhyme and rhyme-displacement through enjambment, establishing satirical and sexually dualistic imagery. The second poem, “Susan c. 78,” explores themes of ignorance and violence as told through the eyes of a seemingly cultured Southern gentleman. This poem is typographically experimental, playing with indentations and spacing to place emphasis on various images, and moving in a slight stream of consciousness narrative. The third poem is entitled “Hues,” and it describes a dichotomy of male and female intelligence, beauty, and strength, told in the context of a cancer diagnosis. This poem is structurally skeletal, yet curvy, mirroring the figure of an emaciated woman. The syntactically rocky voyage through the stanzas develops the voice of a male narrator who can’t find the right words to say, yet manages to crescendo the thoughts toward a blunt conclusion of acceptance. The final poem is entitled “Applesauce,” and it follows a similar thematic journey of struggling with masculine strength. Told through the eyes of an elderly man, it explores themes of sexual and mental impotence, comparing the process of masculine aging to soggy, dripping applesauce. This final poem is close to a hundred lines long, metered and rhymed, to create an epic love song modeled after Eliot’s Prufrock, an effort that attempts to reconcile the problems of “masculine vs. feminine”-an understanding of shared importance.

Regional Neoliberalism: The New System in Latin America

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2011*

Student: Katrina Jorsch 2011

Faculty Mentors: Chris Van Aller, Ph.D. and Karen Kedrowski, Ph.D.

CAS – Department of Political Science

(PLSC 490 Van Aller and Kedrowski)

This paper seeks to explore the question of the perceived shift to the left in Latin America with the institution and expansion of the Southern Common Market (MERCOSUR). It argues that there is not an economic swing to the left in this bloc, but a creation of a new version of neoliberalism that has been adjusted to benefit the member nations of MERCOSUR that is understood by others to be against the current global economic system. The paper uses the European Union (EU) and the North American Free Trade Agreement (NAFTA) as models for comparison to draw the conclusion that MERCOSUR is simply a refined neoliberal economic system.

Liberia: Civil War’s Psychological Effects on Human Development

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Allison Howard 2012

Faculty Mentor: Jennifer L. Disney, Ph.D.

CAS – Department of Political Science

The country of Liberia resides in West Africa, with 29% of its total population of nearly four million living in the capital city of Monrovia. The most shattering part of Liberia’s history occurred between the years of 1989 and 2003, when indigenous Liberian Sergeant Master Samuel Doe’s former procurement chief, Charles Taylor, invaded Liberia with members of his National Patriotic Front (NPF) from the neighboring country of Cote d’Ivoire (“Liberia Country Profile”). Taylor’s invasion engaged the country in a lengthy and socially, economically, and psychologically devastating civil war from which Liberia is still recovering. As a direct result of Charles Taylor’s civil war, Liberia’s economic and educational devastation with their concurrent debilitating psychological consequences threaten to destroy any sense of hope that the nation can fully recover without serious intervention. This essay examines the brutality of Taylor’s war in both micro and macro contexts, as well as how the war directly impacted both the economy and educational system of Liberia. This essay then discusses the psychological implications of such devastation using empirical research relating to traumatic events, post-traumatic stress disorder, and other relevant mental illnesses that have crippled the people of Liberia as a society. Lastly, this essay concludes with possibilities for future recovery and, eventually, human development for the nation of Liberia.

The Differences in Stress between Face-To-Face and Online Chat Flirting Encounters

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: Jennifer Dombrosky 2013, **Rebekah Hildebrand** 2012,
and Macreshia Salters 2013

Faculty Mentor: Matthew Hayes, Ph.D.

CAS – Department of Psychology

(PSYC 302 – Hayes)

This study examined the differences in anticipatory stress in preparation for either a face-to-face or online flirting interaction. This study also examined the effect of the personality factors introversion\extroversion on individual stress levels in anticipation of the flirting interaction. The participants were 39 students from Winthrop University (17 men and 22 women). They reported their current stress, completed the Big 5 personality test, and had their heart rates taken before being told they would partake in either a face-to-face or online via chat flirting interaction. After a period of roughly 3 minutes, participants had their stress measures taken again, and were debriefed and dismissed. The results of this study revealed no significant differences in self-reported anticipatory stress between the face-to-face flirting interaction group or an online via chat flirting interaction. There were no significant differences in reported stress for introverted and extroverted participants. Finally, the data did not reveal any significant differences in heart rate for the face-to-face group or the online via chat group. The findings suggest that neither flirting environment (online or in person) nor personality factor affect the experience of stress in anticipation of flirting.

Expression and Purification of *Xanthomonas euvesicatoria*

Avirulence Protein AvrBs1.1

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Laura Wilt 2013

Faculty Mentor: Jason Hurlbert, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Phytopathogenic xanthomonads possess a type III secretion system (T3SS) that serves to secrete effector proteins that interfere with host immunity and disrupt normal cellular function. Avirulence proteins (Avr) are type III effector proteins that are recognized by specific R gene products in resistant hosts and the binding of R gene products by Avr proteins may elicit a hypersensitive resistance (HR) response in some hosts. In the absence of a corresponding R gene, Avr proteins may act as virulence factors contributing to the pathogenicity of the microorganism. A novel Avr protein, AvrBs1.1, from the pepper pathogen *Xanthomonas euvesicatoria* was recently identified to elicit a delayed hypersensitive response on *Capsicum annuum* leaves. Amino acid sequence analysis of AvrBs1.1 has revealed the presence of a Dual-Specificity Protein Tyrosine Phosphatase domain in C-terminus of the protein, meaning that the protein has the potential to bind substrates with phosphorylated Ser, Thr or Tyr residues. Screening for novel Resistance genes has identified a single binding partner of AvrBs1.1, the R gene product Bs7. Our laboratory has constructed homology models of AvrBs1.1 in addition to its homologue AvrBs7 from *X. gardneri* in order to better explain differences in hypersensitive response timings manifest in *C. annuum* after exposure to *X. gardneri* and *X. euvesicatoria* cultures. While the computational models have provided some insight into potential differences in activation of Bs7 in *C. annuum*, a better understanding of the mechanism by which the R gene and Avr proteins interact will be gained by x-ray crystallographic studies of the protein complexes. Towards this end, we have begun crystallization trials of recombinant AvrBs1.1. The coding sequence of *X. euvesicatoria* AvrBs1.1 was cloned into pET21A (Amp^r/C-terminal hexahistidine tag) which was used to transform *E. coli* Rosetta2 (DE3) cultures. The resulting transformants were used to inoculate 6L of Luria-Bertani medium which were grown at 37°C to an optical density at 600nm of 0.6, were induced by the addition of IPTG and then grown for 18 hours post-induction. The cultures were harvested by centrifugation and the recombinant AvrBs1.1 was purified by a combination of metal chelating affinity and gel filtration chromatographic methods. Identity of the purified protein was confirmed by MALDI-TOF MS. Crystallization screening of the protein is currently being performed.

Family Structure and Sexual Identity: Effects of Family Structure on Sexual Identity

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Joseph R. Otterbine 2012

Faculty Mentor: Douglas Eckberg, Ph.D.

CAS – Department of Sociology and Anthropology

(SOCL 516 – Eckberg)

Objective. The question is raised as to how an adolescent's familial structure can affect the development of their sexual identity and whether sexual identity can solely be defined as something that is developed by their familial structure or if there are multiple contributory factors. There has been some research done in this field and in other related areas. *Methods.* We gathered data from a sample of students at a small public state university in the southeast. I only focus on two questions in the survey having to deal with family structure and sexual

identity. *Results.* The results conclude that family structure does have statistical effect on the development of one's sexual identity development. However there are multiple affects that go into the development of adolescents sexual identity that it cannot be narrowed down to one causal affect. *Conclusions.* One must conclude that there are many factors that need to be taken into account about how one develops their sexual identity. This being just one idea of outside effects on sexual identity led me to look at some other ideas. There needs to be a compilation of research done in this field to find answers. The paper attempts to compile the biological, psychological and sociological effects on sexual identity development.

Synthesizing and Characteristics of Ferrofluids

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Student: Justin Talbert 2012

Faculty Mentor: Ponn Maheswaranathan, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

(CHEM 351 and CHEM 551 – Sumter)

Ferrofluids are colloidal suspension of iron nanoparticles (10-100 nm) utilized in medicine, speakers, computers, and other devices today for their magnetic and thermodynamic properties. Ferrofluids contain magnetite (Fe (II, III) 3O₄ or iron (II, III) oxide), a surfactant, and, sometimes, a carrier. All traditional ferrofluid syntheses include a surfactant and establish that the surfactants (for example, tetramethylammonium hydroxide) play a significant role in their properties. In ferrofluid syntheses, a carrier is not always utilized and its role is not clearly investigated. When a magnetic force is applied to a ferrofluid, the fluid attracts towards the magnetic force and sometimes creates a "spiking" event during which the nano-sized iron particles stand up while gravity pulls down the surfactant. For this event to occur, the iron particles must be around ten nanometers in diameter. Therefore, the size of iron particles created during synthesis determines the extent of the ferrofluid's magnetic properties. With this research, different methods of synthesizing ferrofluids will be performed using different surfactants and carriers, and, also, how the size of iron particles affect the ferrofluid's magnetic and thermodynamic properties will be analyzed and determined. Preliminary results show that ferrofluids can be synthesized using various methods but the magnetic properties are not the same in each synthesis. The role of a surfactant could not be fully analyzed due to either impurities in the magnetite or iron particles being too large. Carriers were found to thin out the ferrofluid and provide a medium that creates less friction so the ferrofluid can move around easier when a magnetic field is applied. To determine the iron particle size, techniques like scanning (SEM) and transmission (TEM) microscopy and powder x-ray diffraction (XRD) will be utilized. The ferrofluid's magnetic and thermodynamic properties will be tested using a home designed electromagnetic apparatus which utilizes test tubes and wrapped around current carrying copper wires.

Biophysical Characterization of Wild-Type Nickel Uptake Regulator (Nur) and H70A, H72A, and H75A Mutants to Determine Their Affinity for Nickel and DNA

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

*Received the Research Corporation for Science Advancement Award,
Winthrop University, May, 2011*

Student: Katie Bolling 2012

Faculty Mentor: Nicholas E. Grosseohme, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

The *Streptomyces* genus is responsible for producing secondary metabolites that account for over half of the naturally-derived antibiotics discovered to date. *Streptomyces coelicolor*, a gram positive bacterium that metabolizes organic material in the soil, belongs to the genus. As a soil-dwelling bacterium, *S. coelicolor* contains metalloregulatory proteins that regulate the bacteria's intracellular concentration of a particular metal. Most of these proteins belong to the Fur (ferric-uptake regulator) family. Nickel Uptake Regulator (Nur) is the only member of the Fur family that regulates nickel homeostasis in *S. coelicolor*. Regulation is achieved by Ni-bound-Nur binding to the promoter region of DNA, thus preventing the production of nickel-uptake machinery. The crystal structure of Nur indicates that the protein is a homodimer with two metal sites per monomer, termed the M site and Ni site; occupation at both metal sites is required for DNA binding. The Ni site is unique to the Fur family because of its location and its coordination to a nickel ion. In this site, the nickel-ion adopts an octahedral geometry as it is coordinated by three nitrogen atoms from histidine residues 70, 72 and 126, and three oxygen atoms from crystallographic matrix molecules. Cha and coworkers suggest that the oxygen contributors would be water molecules in the cell.¹ However, we propose an alternate hypothesis - histidine 75 will preferentially coordinate the nickel-ion, which serves as an allosteric trigger to signal DNA binding. This residue, located in the dimer interface, is oriented towards the Ni site on the adjacent monomer. As residue 75 crosses the dimer interface to coordinate nickel, it will adjust the orientation of the recognition helices to a more suitable DNA binding conformation. To test this hypothesis, we will mutate residue 75 to alanine and assess the differences in metal and DNA binding. Site-directed mutants in the other residues coordinating the Ni site will also be generated. To date, we have mutated residues 70 and 75 and purified wild-type Nur using Fast Performance Liquid Chromatography.

The Metal-Binding Affinities of NUR, a Nickel-Uptake Regulator in *Streptomyces coelicolor*

*Presented at the Big South Undergraduate Research Symposium,
Winthrop University, April, 2012*

Students: Paisley D. Trantham 2012 and **Lauren Rhodes** 2014

Faculty Mentor: Nicholas E. Grosseohme, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

The survival of living organisms is dependent on their ability to maintain homeostasis. This study deals specifically with metal ion homeostasis in *Streptomyces coelicolor*, a species of bacteria. The organism's ability to control the level of metal ions in the cell is largely due to the action on specialized proteins called 'metal sensor' or 'metalloregulatory' proteins, which control the expression of genes relating to metal ion homeostasis. The presence of metal in the protein's allosteric binding sites causes the protein to conform to a shape that will either allow it to bind to DNA or prevent such binding from occurring. *Streptomyces coelicolor* use the metalloregulatory proteins Nur and Zur, from the Fur family of transcriptional regulators. Members of the Fur family are typically transcriptional repressors, in that they will only bind to DNA in the presence of certain metal ions. Nur functions as a nickel uptake regulator while Zur deals with the regulation of zinc levels in the cell. The Nur protein has a very different structure compared to other Fur family members, containing a special nickel binding site as well as a site known as the M-site, which is typically occupied by zinc. The relationship between this site in Nur and the metal ions zinc (II) and nickel (II) will be characterized through the use of isothermal titration calorimetry and spectrophotometric assays of the purified Nur protein when the H33A, H86A, H88A, and H90A site residues have undergone mutation.

Other Student/Faculty Collaborations

Muslim Americans: Values Voters or Undervalued Voters?

Student: Timothy C. Kroboth 2012

Faculty Mentors: Chris Van Aller, Ph.D. and Karen Kedrowski, Ph.D.

CAS – Department of Political Science

(PLSC 490)

The purpose of this paper is to analyze the political identities of Muslim Americans. Over the past decade, several previous survey-based studies have established only basic correlations between being Muslim American and holding certain preferences regarding party choice and some policy issues. However, this paper seeks to examine the varying levels of importance of cultural, ethnic, and religious factors that shape the political perspectives of Muslim Americans. By analyzing the methods of political studies of Muslim Americans and results of a multidimensional survey designed and conducted specifically for the purposes of this paper, the work aims to provide readers with a clearer understanding of Muslim American's political affiliations and voting patterns. This paper explains what previous studies of Muslim Americans have missed and how future studies can adapt to the peculiar difficulties of studying this group, who tend to view themselves as political independents despite typically voting for Democratic candidates. Finally, the paper analyzes the political behavior and views of Muslim Americans, and offers suggestions for future studies on the subject.

Stirred by Offensive Papers: How Can Tutors Learn to Stay Professional?

Student: Joseph A. Giordano 2012

Faculty Mentor: Jane B. Smith, Ph.D.

CAS – Department of English

(WRIT 500 - Smith)

When tutors encounter student writing that is offensive or conflicts with their beliefs, it is sometimes difficult to maintain ethical guidelines, despite a commitment to free speech. A number of issues may arise if the tutor does not conduct the session in a professional and ethical manner and reacts negatively: the student may feel censored; she may feel as if she is being personally attacked; or she may lose a sense of confidence in herself. To remedy this issue, I propose three approaches that will prepare tutors to handle their potential emotional bias. First, tutors should be made aware of the importance of nonverbal communication as expressed by movement of the arms and hands, facial expressions, and posture as is shown in the work by body language expert Samy Molcho. Secondly, tutors should be taught the importance of controlling their emotions and opinions in order to be objective and create a neutral environment, which is emphasized in tutorial guides by authors such as Emily Meyer and Louise Smith. Finally, students should be taught critical thinking strategies such as those found in Gerald Nosich's work, which reinforces metacognition that can lead to tolerance of clients' ideas.

Synthesizing and Characterizing of YBCO Superconductor

Student: Samuel Bond

Faculty Mentor: Ponn Maheswaranathan, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

(CHEM 552 – Sumter)

YBa₂Cu₃O₇ is a type-2 superconductor with a critical temperature of about 90K, which is above the liquid nitrogen temperature. Its electrical properties are investigated by many research groups due to its possible application in transmitting electric current without any heat generation. In this research we synthesized YBCO powder at 1100 degrees Celsius under atmospheric environment and the powder is used to make a tablet using a cylindrical press. Superconductivity is observed in the powder using the magnetic repulsion method. The research needs to be continued with making YBCO under the oxygen-rich environment and to make electrical contact leads to the tablet for four-point-probe resistivity measurement.

Analysis of Policy Decisions and Their Success in the Restoration of the Aral Sea Basin

Student: Kayla Barber 2012

Faculty Mentors: Chris Van Aller, Ph.D. and Karen Kedrowski, Ph.D.

CAS – Department of Political Science

(PLSC 490 - Van Aller and Kedrowski)

The Aral Sea is one of the most profound examples of the human capacity to degrade valuable resources. Over the course of a few decades, poor water management practices have led to the desiccation of the Aral Sea and the surrounding environment as well as a health and economic crisis throughout Central Asia. This paper looks at the Aral Sea crisis as both an environmental and transboundary issue and conducts policy evaluations on the two largest programs in the region: the World Bank Group's Aral Sea Basin Program and the Executive Committee for the International Fund to the Aral Sea Basin Program III. Through this analysis it is determined that the first program meets less than half of the necessary requirements of a good transboundary environmental policy, while the second program proves to be a better policy as it meets all seven of the criteria necessary for a good transboundary environmental policy.

***Cicerina debrae*, n.sp. (Platyhelminthes, Kalyptorhynchia) from the Coast of North Carolina, USA**

Student: Kea Tucker 2012

Faculty Mentor: Julian Smith III, Ph.D.

CAS – Department of Biology

Kalyptorhynch flatworms are widely distributed because of their ability to live in both temperate and tropical environments and are among top turbellarian predators. Their small size places them in a classification called meiofauna, which is a term used to categorize small invertebrate marine or fresh water species, small enough to pass safely through 500µm filter. As part of a long-term ecological study of a beach near Emerald Isle, North Carolina, more than 30 species of kalyptorhynchs have been partially characterized. Many of these appear to be new species. The particular flat worm we were concerned with in this research had been given the “helping name” “Cinci Augi”. Based on the structure of its proboscis, it appeared to be a member of the Family Cicerinidae. Within the Cicerinidae, this species keys to the Genus *Cicerina* because the proboscis has four distinct secretory ampoules and its testes are located in the posterior region with respect to the pharynx. This species has a key anatomical difference that distinguishes from any other species of *Cicerina*. It lacks a penis stylet, has shorter cirrus than any species presently described in the genus, and possesses cuticularized spermatid canals that are different in shape from those in the presently known species. Accordingly, we deem this a new species, naming it *Cicerina debrae*.

Diet Analysis of Predatory Marine Meiofauna Using Poison-Primer Molecular Techniques

Student: Austin Weiss 2012

Faculty Mentor: Julian Smith III, Ph.D.

CAS – Department of Biology

Kalyptorhynchs are free-living, predatory flatworms from the phylum Platyhelminthes. As members of the meiofauna, these flatworms can be found thriving among the sand grains of marine sediment and may eat a number of different meiofauna. The purpose of this research was to perform DNA amplification and analysis of a kalyptorhynch specimens using the “poison primer” method in order to determine its diet. Theoretically, by preventing the universal PCR primers from annealing to the kalyptorhynch sequence, the primers would instead anneal to the DNA of the prey. This DNA would then be sequenced and compared against known meiofaunal sequences to determine the kalyptorhynch’s prey. Using MacVector, a digital sequence analysis program, known 18s ribosomal subunit sequences from possible prey subjects were aligned along with that of a new kalyptorhynch species belonging to the genus *Proschizorhynchus* and the universal primers. The blocking primer was designed by locating a region of high variability midway through the universal priming region and creating a 20bp sequence complementary to the predator sequence at that point. Initial experiments for positive-control amplification of predator DNA yielded poor results, which led to the discovery that its sequence contained a thymine/cytosine shift in the forward priming region and a thymine insertion in the reverse priming region. Therefore, a new primer set producing slightly larger fragments was used. Currently, DNA extraction of full-gut and empty-gut specimens from *Proschizorhynchus* sp are being collected for use in the initial PCR trials with the custom blocking primer present. An additional predator species, a Nemertine from the genus *Ototyphlonemertes*, is also undergoing DNA PCR, purification, and sequencing for eventual gut analysis. Ultimately, if the “poison primer” method is a success, it will be the first molecular technique to provide an accurate study of food-web relationships in marine meiofauna.

Justice Elena Kagan and Methodologies for Interpreting the Constitution

Student: Lindsay Schob 2011

Faculty Mentors: Karen Kedrowski, Ph.D. and Chris Van Aller, Ph.D.

CAS – Department of Political Science

(PLSC 490 – Kedrowski and Van Aller)

This paper reviews Supreme Court majority opinions and dissents written by Associate Justice Elena Kagan and subsequently evaluates them against Epstein and Walker’s six approaches to judicial decision making: Original Intent, Textualism, Original Meaning, Stare Decisis, Polling Jurisdictions, and Pragmatism. Murphy et al. further deconstructs constitutional interpretation with four techniques: Strict v. Liberal Construction; Judicial Activism v. Judicial Restraint; Substantive v. Procedural; and Interpretivism v. Non-interpretivism. In order to evaluate each of the ten cases, I applied a content analysis to classify each of the cases into the appropriate categories. As a result, I found that Justice Kagan repetitively utilizes stare decisis and textualism as her primary approaches to judicial decision making while also utilizing original intent in six of the cases.

Binding Copper

Student: Amy Moore 2013 (WISE Scholar)

Faculty Mentor: Nicholas E. Grosseohme, Ph.D.

CAS – Department of Chemistry, Physics, and Geology

Copper’s usefulness in biological systems, similar to iron, stems from its ability to oxidize readily under biological conditions. It has been found that copper (I) is the biologically relevant oxidation state in biological systems. Since a majority of studies of copper are conducted *in vitro* on copper (II) this research aims to optimize *in vitro* copper (I) experimentation by stabilizing and counteracting the possibility of copper oxidizing. Copper (I) is difficult to stabilize in aqueous medium due to its natural tendency to oxidize spontaneously to form copper (II). Stabilizing copper (I) can be accomplished by working under anaerobic conditions and addition of a stabilizing ligand which will prevent copper from undergoing undesirable side reactions. To date, acetonitrile has been explored as a possible stabilizing ligand. To study copper (I) both isothermal titration calorimetry (ITC) and spectrophotometric experiments have been used to understand the binding of copper to a variety of ligands such as bathocuproine disulfonate (BSA) and bicinechonic acid (BCA) which both have a high affinity for binding with copper. These two ligands have been found to bind with a 2:1 stoichiometric ratio as expected. The future of this research will be to explore additional ligands that bind with copper and find thermodynamic and binding data of the copper binding with additional ligands.

The Effects of Anthropogenic Activities on Meiofauna Diversity along Ocean Beaches

Student: Stephen Whisonant 2012

Faculty Mentor: Julian Smith III, Ph.D.

CAS – Department of Biology

(ENVS495 – Smith)

Beach nourishment is a common practice designed to replenish beach property that has been eroded through natural occurrences. For the last forty years of mandatory monitoring there is still uncertainty of how beach nourishment affects the biology of these areas. One general effect of beach nourishment is to increase mean grain size in the sediment through net addition of shell hash. This experiment is aimed towards investigating whether or not there is a difference in diversity of meiofauna in beach areas rich in shell hash (“shelly”) and areas that are not rich in shell hash (“sandy”). Based on previous research, there will be a larger diversity in meiofaunal species in areas of the beach that are sandy compared to those that are shelly. Samples were taken from a North Carolina beach during late winter and early spring. These samples were located in the lower part of the beach where sediments are added during nourishment. A total of ten samples were collected; five from shelly sites and five that from sandy sites. Granulometry of each sample is still in progress and will be analyzed using Gradistat to determine median grain size, mean grain size, sorting, skewness and kurtosis. So far there seems to be an average difference of 10 micrometers in median grain size. To analyze for differences in meiofaunal diversity between the shelly and sandy sites, animals were counted in resin-slide embeddings (two samples each from shelly and sandy sites) and assigned to phylum. In addition, all Platyhelminthes and Acoelomorpha were assigned to family. Chi-squared analysis did not reveal significant difference across phyla between the sites (Platyhelminthes, Gastrotrichs, Nematodes, Harpacticoids, Annelids and Acoelomorphans; $p=0.07$); however, families of Platyhelminths were distributed differently in the two regions ($p= 0.005$). The Shannon diversity index for the sandy samples (analyzed by Phylum) was higher at 1.23 compared to diversity of 1.21 for the shelly samples. The samples that are shelly with higher median grain size have a lower diversity in meiofaunal phyla and Platyhelminthes species. Therefore, it appears that sandy samples have a higher meiofauna diversity and abundance compared to the shelly samples. Such information can be used to provide insight on how humans affect the biodiversity and additional knowledge to the ecology of these microscopic animals.

OFFICE OF NATIONALLY COMPETITIVE AWARDS (ONCA)

Winthrop University's Office of Nationally Competitive Awards (ONCA) identifies and assists highly motivated and talented students to apply for nationally and internationally competitive awards, scholarships, fellowships, and unique opportunities both at home and abroad. ONCA gathers and disseminates award information and deadlines across the campus community, and serves as a resource for students, faculty, and staff throughout the nationally competitive award nomination and application process.

The ONCA Award Recognition Ceremony is an annual event recognizing the difficult and rewarding challenge taken on by Winthrop University students to apply for some of the most prestigious scholarships in the nation and the world. Win or lose, the process of personal reflection required to complete a nationally competitive award is often transformative in a student's life, and can be as important as the outcome. ONCA's Fifth Annual Award Recognition Ceremony (2011-2012) celebrates a record-number of 30 nationally competitive award applications for scholarships including the Rhodes, Marshall, Fulbright, and Benjamin A. Gilman International Scholarship to study abroad. We are particularly excited that ONCA student achievements will now be documented in the new university-wide *Undergraduate Scholarship at Winthrop University Book of Abstracts*.

This has been a record-breaking year for ONCA students. When this office was founded under the leadership of President DiGiorgio and then Dean Brien Lewis in 2006, we had perhaps one or two applicants for nationally competitive awards each year. By 2010, we had grown to 13 applications annually. This year, we will celebrate more than 30 applications for nationally competitive awards, achieving the first Rhodes Scholar Finalist in Winthrop University's 125-year history, a Fulbright Finalist, and several Benjamin A. Gilman International Scholarships for pell grant recipients to study abroad, with several awards still pending. We proudly and successfully targeted the Gilman Scholarship this year in the context of the University's Global Learning Initiative (GLI). We have truly impacted the campus culture and changed the lives of our students by helping them identify, recognize, and achieve the goals and dreams of which they are capable.

In addition to recognizing the work of each of our ONCA Scholars, I would like to thank each and every member of the Winthrop University community who has given a student an encouraging word, recommended a student for ONCA through the online midterm reporting system established by Dean Gloria Jones, written a letter of recommendation, brought an ONCA presentation into the classroom, participated in an award selection or mock interview committee, or served on the ONCA Advisory Board. We are truly making a difference in the lives of our students.

Dr. Jennifer L. Disney

Associate Professor of Political Science
Director, Office of Nationally Competitive Awards (ONCA)
Winthrop University
April 2012

OFFICE OF NATIONALLY COMPETITIVE AWARDS (ONCA)
FIFTH ANNUAL AWARD RECOGNITION CEREMONY 2011-2012
SATURDAY, APRIL 21, 2012 10:30am-11:00am

Benjamin A. Gilman International Scholarship Program: Awards 2,300 scholarships of up to \$5,000 per academic year for U.S. citizen undergraduate students of limited financial means to pursue academic studies abroad. Such international study is intended to better prepare U.S. students to assume significant roles in an increasingly global economy and interdependent world.

- Winthrop University Winner: *Lamarcus Grier* (PSYC)
- Winthrop University Winner: *Amber Schilling* (HIST)
- Winthrop University Nominee: *Jay Maserian* (BADM)
- Winthrop University Nominee: *Courtney Pearson* (SCWK)
- Winthrop University Nominee (Pending): *Teena M. Allen* (SCWK)
- Winthrop University Nominee (Pending): *La Vina Bird* (MLAN/SPAN/BIOL)
- Winthrop University Nominee (Pending): *Josiah Blevins* (ARTS)
- Winthrop University Nominee (Pending): *Maclain Borsich* (NUTR/PEAC)
- Winthrop University Nominee (Pending): *Dominique Ferguson* (BADM/ENTR/EDUC)
- Winthrop University Nominee (Pending): *Katy Fuesser* (MLAN/SOCL)
- Winthrop University Nominee (Pending): *Michelle Kelley* (BIOL)
- Winthrop University Nominee (Pending): *Helen Layton* (PLSC/PEAC)
- Winthrop University Nominee (Pending): *Peter Le* (BADM/FINC)
- Winthrop University Nominee (Pending): *Audreyonnia Napoleon* (IMCO/INTS)
- Winthrop University Nominee (Pending): *Parker Quinlan* (PLSC/GERM/FREN)
- Winthrop University Nominee (Pending): *Ana N. Smith* (MLAN/SPAN/FREN/INTS)
- Winthrop University Nominee (Pending): *Jon Willis* (DIFD/GERM)

The Elie Wiesel Prize in Ethics: The Elie Wiesel Prize in Ethics Essay Contest was established in 1989 as an annual competition designed to challenge college students to analyze the urgent ethical issues confronting them in today's complex world. Students are encouraged to write thought-provoking personal essays that raise questions, single out issues, and are rational arguments for ethical action.

- Winthrop University Nominee: *Allison Howard* (PSYC/ENGL/AAMS)
- Winthrop University Nominee: *Kristen McLaurin* (BIOL/CHEM)

Fulbright Awards for Graduate Study: One of the most widely recognized academic honors, the Fulbright awards provide support for graduate students and young professionals to study abroad. Awards include full grants for an academic year of study or research, travel grants and teaching assistantships in English.

- Winthrop University Finalist (Pending): *Kevin Ryan* (BIOL/CHEM)

Jack Kent Cooke Foundation Graduate Arts Award: The Jack Kent Cooke (JKC) Graduate Arts Award recognizes and rewards America's promising up-and-coming artists from lower-income backgrounds with the nation's leading graduate scholarships in the visual arts, performing arts, and creative writing. The JKC Foundation identifies exceptional individuals who not only have exceptional artistic or creative promise, but also demonstrate academic achievement and the will to succeed in their chosen fields.

- Winthrop University Nominee: *Megan Gainer* (ARTS)
- Winthrop University Nominee: *Everett Johnson* (DANA/ARTH)

Marshall Scholarships: Marshall Scholarships finance young Americans with high academic merit, leadership, and ambassadorial potential to study for a degree in the United Kingdom. At least 40 Marshall Scholars are selected each year to study at a UK institution in any field.

- Winthrop University Nominee: *A. Dejon Bivens III* (PLSC)
- Winthrop University Nominee: *Matthew Horn* (BIOL/CHEM)
- Winthrop University Nominee: *S. Lauren Thompson* (ENGL/EDUC)

Phi Kappa Phi Graduate Fellowship Award: The Honor Society of Phi Kappa Phi awards 51 Fellowships of \$5,000 and five Fellowships of \$15,000 to members entering the first year of graduate or professional study.

- Winthrop University Nominee (Pending): *J. Amy Deng* (CHEM/BIOL)
- Winthrop University Nominee (Pending): *Matthew Horn* (BIOL/CHEM)

Phi Kappa Phi Study Abroad Award: Phi Kappa Phi Study Abroad Grants are designed to help support high-achieving undergraduates as they seek knowledge and experience in their academic fields by studying abroad. Thirty-eight \$1,000 grants are awarded to students with 30-90 credit hours and a GPA of 3.5 or higher.

- Winthrop University Nominee (Pending): *AnnaBeth Adams* (MLAN/SPAN)

Rhodes Scholarship: The Rhodes Scholarship is one of the most competitive and prestigious awards available to students in the world. It includes all fees, travel expenses, and a yearly stipend for two years of study at Oxford University in the United Kingdom, with a possible renewal for a third year. Thirty-two Rhodes Scholars are awarded annually—winners must undergo interviews at the state and regional level.

- Winthrop University Finalist: *A. Dejon Bivens III* (PLSC)
- Winthrop University Nominee: *Matthew Horn* (BIOL/CHEM)
- Winthrop University Nominee: *Allison Howard* (PSYC/ENGL/AAMS)

Truman Foundation Scholarship: The Truman Scholarship provides up to \$30,000 in funding to juniors pursuing graduate degrees in public service fields who want to be change agents in the world.

- Winthrop University Nominee: *Helen Layton* (PLSC/PEAC)

WINTHROP UNIVERSITY RECOGNIZES ONCA STUDENT SUCCESS STORIES

AnnaBeth Adams is a sophomore Modern Languages major with a Concentration in Spanish and a minor in International Studies with a Latin American regional focus. She is applying for the Phi Kappa Phi Study Abroad Scholarship for \$1,000 to study abroad in Buenos Aires, Argentina during the Fall 2012 semester to study the Spanish language. After graduation, she hopes to live in a Spanish-speaking country to help communities that are living in poverty.

Teena M. Allen is a Social Work major who applied for the Benjamin A. Gilman International Scholarship to study abroad in Seville, Spain. She is passionate about her family and social justice. She takes a special interest in what she refers to as the Holistic Social Work approach. She considers herself a Social Worker to the core and an activist for the betterment of all people. After graduation, she plans on pursuing a graduate degree in Social Work and doing in-depth research on topics like education and violence within the black community.

La Vina Bird is a junior Modern Languages major with a concentration in Spanish and a minor in Biology. She will be studying in Seville, Spain, during the fall semester of 2012. While there, she will expand her knowledge of Spanish culture and increase her fluency. After graduation, she plans on being an interpreter for Spanish-speaking immigrants in America.

Ansel D. Bivens III is a senior Political Science major with a 3.96 GPA graduating in May 2012. Dejon is the first Rhodes Scholar Finalist in the 125-year history of Winthrop University. He was also one of eight college students from the United States to attend the APEC conference in Hawaii in the fall of 2011, attended by world leaders including President Obama. Dejon has been the recipient of the Rosalind Sallenger Richardson Senior Scholarship, the Sunbelt Rentals Scholarship, the Alice Anderson Gill Scholarship, and the G. Lefvendahl Scholarship. He was also selected as the ITA Scholar Athlete of 2010-2011. Dejon is a member of Phi Kappa Phi and Pi Sigma Alpha Honor Societies, and serves as President of the Pi Gama Mu Honor Society. Dejon plans to pursue a law degree and a career in family law.

Josiah S. Blevins is a junior BFA major in Art with concentrations in Printmaking and Sculpture. He applied for a Benjamin A. Gilman International Scholarship to study printmaking in Imatra, Finland, during the fall 2012 semester. After graduation, Josiah intends to seek his MFA and a career in art.

Maclain Borsich is a freshman Human Nutrition major, with a minor in Peace, Justice, and Conflict Resolution Studies. In the fall of 2012 she will be studying abroad in Hyderabad, India, and will have hopefully won the Benjamin A. Gilman International Scholarship. After graduation, Maclain will join the Peace Corps and help fight hunger in impoverished regions of the world.

J. Amy Deng is a senior Chemistry and Biology double major with a concentration in ACS-Biochemistry who will be graduating in May 2012 with a 4.0 GPA. After graduation, Amy will be pursuing a dual M.D./Ph.D. degree with a research focus on Cancer Biology at Vanderbilt University, University of Michigan or Duke University medical school. Amy has been conducting research under the mentorship of Dr. Takita Sumter, Associate Professor of Chemistry, to investigate a group of oncogenic proteins called the High Mobility Group A1 (HMGA1) proteins. In the summer of 2011, Amy participated in the Summer Honors Undergraduate Research Program at Harvard Medical School and conducted research at the Dana-Farber Cancer Institute affiliated with Harvard.

Dominique Ferguson is a freshman Business Entrepreneurship major with a minor in Education. He is pursuing the Benjamin A. Gilman International Scholarship to help his plans to study abroad in Queensland, Australia. After graduation, he plans to develop his own chain of restaurants.

Katy Fuesser is a junior Spanish major with a Social Sciences minor. She has applied for the Benjamin A. Gilman International Scholarship to achieve her life-long dream to study Spanish language and culture in Seville, Spain. After graduation, she intends to complete an internship in Bradenton, Florida, with the Major League Pittsburgh Pirates organization and travel to multiple Latin American countries to serve as a recruitment translator. She hopes one day to return to Winthrop University and complete the MAT program so that she can become a high school teacher or college professor of Spanish.

Megan Gainer is a senior Fine Arts major with a concentration in Jewelry/Metals in the Honors Program. She applied for the Jack Kent Cooke Graduate Arts Award to assist her during her graduate studies in Jewelry/Metals at Edinboro University in Edinboro, PA. After graduate school, Gainer plans to move back to her home state of West Virginia and start a Jewelry/Metals program at an in-state university while starting her own studio business.

Lamarcus Grier is a Psychology major who was awarded a Benjamin A. Gilman International Scholarship to study abroad this semester at Edge Hill University in the United Kingdom. Marcus lives and works within the Blackmon Road Community (BRC) of Rock Hill, SC, a community devastated by intergenerational poverty. He is working toward the creation of an adult empowerment program in the BRC. His goal is “to show the people in my community and outside the community that anything is possible when you believe.”

Matthew Horn is a senior soccer student-athlete in the Honors Program majoring in Biology with a minor in Chemistry and a 3.93 GPA. Matt is a two-year soccer team captain, Lowe’s Senior CLASS All-American, Capital One Academic All-American, NSCAA Academic All-American, and a Rhodes and Marshall Scholar Nominee. Matt has also been selected to receive the NCAA Postgraduate Scholarship and is one of three national finalists for the NCAA Walter Byers Scholarship. Matt is also the recipient of the Algernon Sydney Sullivan Award for service and altruism to Winthrop and beyond. He is a two-year leader of the Fellowship of Christian Athletes (FCA), two-time alternative spring break (ASB) leader, president of the Student Athletic Advisory Committee (SAAC), chair of the Big South Conference SAAC, and a Division I national SAAC representative. Through SAAC, Matt has advocated for several organizations like Samaritan’s Feet, Soap for Souls, and the Boys and Girls Club. Next year, Matt will join the class of 2016 at the University of North Carolina School of Medicine.

Allison Howard is a senior Psychology major in the Honors Program with a double minor in English Literature and African-American Studies with a 3.90 GPA. Inspired by an international politics conference she attended while studying abroad in Ireland, Allison returned with a new passion: human rights. After completing her Honors Thesis during her junior year on altruism’s relationship to nonprofit organizations, she completed a summer internship with Amnesty International in Washington, D.C. She applied for the Rhodes Scholarship to attend Oxford University and earn her MS. in Evidence-Based Social Intervention. Despite not obtaining the Rhodes, she was accepted by Oxford and plans to attend this fall. Afterwards, she will enter into Teach For America as a Corps Member in Detroit, Michigan. She plans to earn her Ph.D. in Counseling Psychology and eventually establish a nonprofit organization dedicated to establishing free mental health and counseling centers in areas of the world most affected by human rights violations.

Everett Johnson is a senior Ronald E. McNair Scholar majoring in Dance Performance and minoring in Art History. After graduation, Everett plans to attend graduate school at NYU with the assistance of the Jack Kent Cooke Arts Fellowship, where he will pursue an M.F.A. in Choreography/Performance. His current research topics include looking at the social stigmas of male dancers and the work of HIV Positive artists. Everett's future plans focus on becoming the Artistic Director of his own dance company, creating a collaboration-based production company, working as a college professor, and establishing an arts organization that is run by youth living with/affected by HIV/AIDS geared towards young artists.

Michelle Kelley is a senior Biology major with a minor in Chemistry graduating in May 2013. After graduation, she will begin a Physician's Assistant Master's program. For her final fall semester, she plans on studying abroad in London, England, at Kingston University and using this experience to heighten her knowledge academically as well as personally. Currently, she is waiting to find out if she has been accepted to receive the Benjamin A. Gilman International Scholarship.

Helen Layton is a rising senior Political Science major with a double minor in Peace, Justice, and Conflict Resolution Studies and International Studies. She applied for the Harry S. Truman Scholarship in addition to the Benjamin A. Gilman International Scholarship to study abroad in London and Amman in the Peace & Conflict Resolution in the Middle East and Beyond Program with intensive language study in Arabic. After graduation, she plans to continue her education at American University in Washington, D.C. to pursue a Master's of Arts in Ethics, Peace, and Global Affairs.

Peter Le is a junior Finance major with a 3.4 GPA. He is hopeful to win the Benjamin A. Gilman International Scholarship so he will be able to study abroad in Melbourne, Australia, during the fall 2012 semester. After graduation, he hopes to pursue a career in corporate finance and aspires to become a CFO of a bank.

Kristen McLaurin is a sophomore Biochemistry major with a minor in Psychology. She will be a WISE Intern this summer. She is currently interested in researching Alzheimer's Disease. After graduation, she hopes to obtain a Ph.D. in Neuroscience or Human Genetics.

Audreyonnia Napoleon is a sophomore Integrated Marketing Communication major with a minor in International Studies. She applied for a Benjamin A. Gilman International Scholarship to study abroad during the fall of 2012 at the University of the Sunshine Coast in Queensland, Australia. While in Australia, she hopes to study international communications and event planning. After her May 2014 graduation, Audreyonnia plans to work in event planning and one day open and operate her own business.

Parker Quinlan is a sophomore Political Science major with a minor in German and French, with a 3.5 GPA. Parker has applied for a Benjamin A. Gilman International Scholarship to assist in his plans to travel to Germany for one year to study at the University of Flensburg. He is the campaign manager of the Ryan Payne campaign in the 44th district of South Carolina, and also wishes to go to law school after he obtains his undergraduate degree.

Kevin Ryan graduated from Winthrop University with a Bachelors of Science in Biology and Chemistry in 2011. While at Winthrop, he was awarded a National Science Foundation Research Fellowship to study soil biochemistry at the University of Idaho. Kevin completed his undergraduate honors thesis field work in a watershed in Costa

Rica. After graduating, he helped develop a water quality monitoring program for the Bellbird Biological Corridor in Costa Rica. Kevin is a Fulbright finalist, recommended by the Fulbright Scholarship Program to Costa Rica awaiting their final county selections. Currently, he is working with a watershed restoration organization in West Virginia where he focuses on remediation of acidic mine water draining from abandoned coal mines.

Amber Schilling is a sophomore History major in the Honors Program. She was awarded a Benjamin A. Gilman International Scholarship for \$3,500 to study abroad in Hyderabad, Andhra Pradesh, India, to study Indian history and culture in the spring of 2012. During her stay in India, she traveled the subcontinent, and, on a weekend trip to Mumbai, was almost an extra in a Bollywood film. Despite this foray into the world of Indian cinema, Amber plans to work in museum public programming or historic preservation when she returns.

Ana N. Smith is a senior Modern Languages major specializing in French with a double minor in Spanish and International Studies. Ana was born in Cuba, immigrated with her parents and became a naturalized citizen of the United States many years ago. She is a non-traditional student who challenged herself to return to college and study languages. She has been invited to join the French National Honor Society, the Spanish National Honor Society and is on the Dean's List. After graduation, she intends to pursue a career that would allow her to help others across cultures, borders, and oceans.

S. Lauren Thompson is a Senior English Secondary Education Major with a 3.8 GPA graduating in May 2012. Lauren won the prestigious Hurley Fellowship to travel to Scotland to study poetry and the Gothic at the University of Stirling. Lauren was also a Marshall Scholarship candidate to return to Scotland to pursue a Master's Degree in the Gothic Imagination. Lauren is very excited to begin her career as a Highly Qualified Teacher of English in a high school in her beloved state of South Carolina.

Jon Willis is a junior Digital Information Design major with a minor in German. He has applied for the Gilman Scholarship to study the German language and linguistics for one year in Germany. He aspires to have an enjoyable career that surrounds him with both design and languages.

McNair Scholars

The Winthrop McNair Scholars Program is funded through a U.S. Department of Education TRiO grant (PR/Award No.: P217A090009) and matching funds from Winthrop University. The program serves a select group of undergraduates who meet first generation and income criteria or who come from groups underrepresented in higher education.

Each year, the twelve-member Winthrop McNair Advisory Board chooses up to 25 Scholars through a highly competitive application and interview process. All McNair Scholars complete an intensive undergraduate research experience and receive academic support and financial assistance to successfully enroll in and complete doctoral programs.

Being a McNair Scholar is a prestigious, nationally recognized honor resulting in Scholars being actively recruited by graduate programs across the country. For more information, visit www.winthrop.edu/mcnair.

Cheryl Fortner-Wood, Ph.D.

Director, McNair Scholars Program
Associate Professor of Psychology

Scholar (Mentor) Research Presented at 2011 SAEOPP Conference

Charlotte Brown (Malyaka Klimchak, Ph.D.)

Dr. Jekyll and Mr. Hyde: The Duality of the Relationship Between Psychological Entitlement and Extra-Role Work Behavior

Michael Capps (Joe Rusinko, Ph.D.)

The Algebraic Properties of Jukes-Cantor Toric Varieties

Vitta Clawson (Merry J. Sleight, Ph.D.)

1. *So You Think You Know: Undergraduates' Expectations and Knowledge Related to Future Plans*
2. *Predictors of Anxiety Resulting from Differences in Real vs. Idealized Self*

*Dedra C. Darby (Shebby Neely-Goodwin, Ph.D.)

The influence of Religiosity/Spirituality on the Health Risk Behaviors in Children and Adolescents

Katheryn Dixson (Eurnestine Brown, Ph.D.)

Understanding Family Dynamics in Head Start Grandparents

Donald Drennon (Janet Wojcik, Ph.D.)

College Students' Motivations for Physical Activity

Cayla Eagon (Jack DeRochi, Ph.D.)

Vaults, Caverns, and Labyrinths: Psychosexuality in Mathew Lewis's The Monk

Megan Friend (Stephanie Milling, Ph.D.)

The Heavy Weight of Childhood Obesity: The Role of Dance Education to Lighten the Load

Cecile Gadson (Tracy Griggs, Ph.D.)

Let's Talk about Sexting: The College Students' Perspectives on the Dynamics of Sexual Communication

Ashley Garrick (Tracy Griggs, Ph.D.)

Gender Differences in Alcohol Use When Hooking Up

Danielle Giles (Matthew Hayes, Ph.D.)

Conflict in Long-Term Relationships

John Huffman (Michael Lipscomb, Ph.D.)

Conditioned for an Apocalypse

Shantelle Igiozee (Janet Wojcik, Ph.D.)

Food Deserts – The Effects of Location of Food Retailers

Everett Johnson (Karen Stock, Ph.D.)

Initial Reactions and Future Perceptions: Social Stigmas and of Male Dancers and the Preconceptions of Their Art

Kevin Mays (T. Christian Grattan, Ph.D.)

The Design, Synthesis and Characterization of Novel Sphingosine Kinase (III) Competitive Inhibitors with an Emphasis on Pharmacophoric Zone "4" Derivation

Jasmine Morgan (Shebby Neely-Goodwin, Ph.D.)

The Assessment of Admission Criteria of Assisted Living Facilities

*Ron Nelson (Takita Sumter, Ph.D.)

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Daniel Selvey (Merry J. Sleight, Ph.D.)

Adults' Perceptions of the Double Standard for Heterosexuals and Homosexuals

Kia Smalls (Matthew Hayes, Ph.D.)

Fan Identification and Correlation to NBA Game Perception, Enjoyment, and Outcome

Brittany Stapleton (Janet Wojcik, Ph.D.)

Administration of the Senior Fitness Test in Adults in Independent & Assisted Living Facility

Raven Suber (Malyka Klimchak, Ph.D.)

Can You Handle the Truth? Dispositional and Attitudinal Factors Related to Receptivity of Critical Feedback

Brandi Teat (Charles Alvis and Barbara Pierce, Ph.D.)

Small Business' Tolerance of Ambiguity

*Brittany Walker (Wofford student) (Cliff Calloway, Ph.D.)

Software Modification for Programming Temperature Increases in a Tungsten Coil Atomizer

Cedric Williams (Limestone Student) (Kim Wilson, Ed.D. and Janice Chism, Ph.D.)

Distinguishing Among Canid Fecal Samples Using Multiplex PCR

**All presenters competed with McNair Scholars from around the country. These presentations earned top awards.*

Although not listed above, Dr. April Gordon deserves special recognition for mentoring a McNair Scholar in 2010 and 2011.

WISE Scholars

The Winthrop Initiative for STEM Educators (WISE) program is supported by a \$1.2 million grant through the National Science Foundation Robert Noyce Scholarship Program. The primary focus of the WISE efforts is to recruit, support, and mentor science and mathematics majors choosing to pursue teaching as a career. The program currently has two primary outreach activities. The WISE Scholars are graduate and undergraduate students committed to teaching in high need schools and are provided scholarship funds, connections to state and national organizations for STEM teachers, opportunities for conference participation, additional mentoring, and access to STEM education resources on campus. The WISE Interns are first and second year Winthrop and York Technical School students pursuing STEM degrees. These students participate in a summer program that explores research in a disciplinary group, engages in local schools for service learning, and promotes the formulation of individual research questions for more extensive investigation through a variety of other avenues.

The following WISE Scholars submitted abstracts for their scholarly work:

Sharon E. Jenkins
Destinee Johnson
Amy Moore
Matthew Ryan

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