

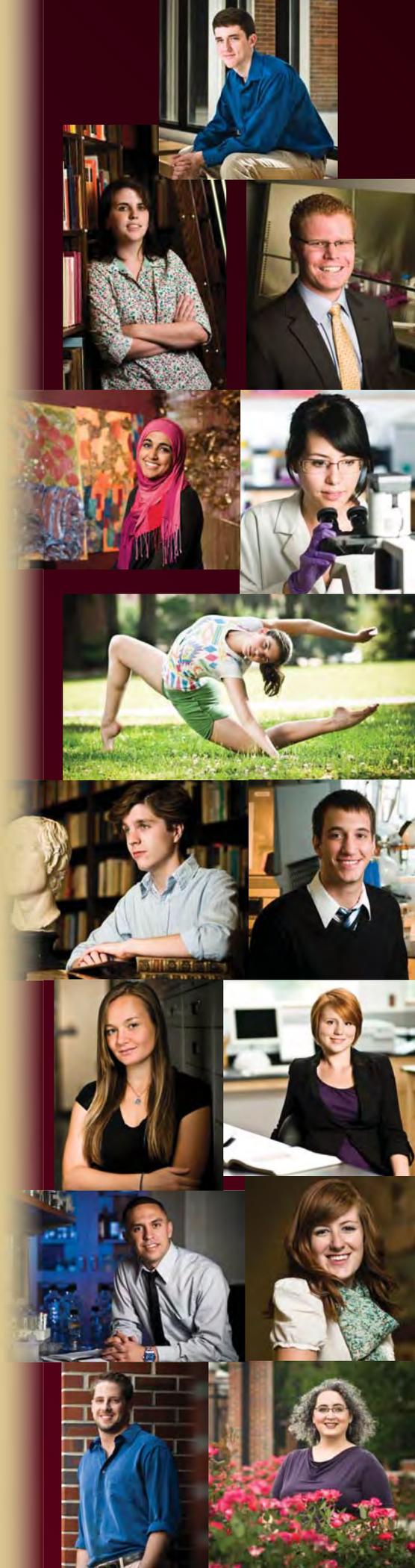
# Undergraduate Research and Creative Activity Award Symposium

October 6, 2011  
5:30 p.m. – 7:30 p.m.

Augustus B. Turnbull III Florida State Conference Center



Division of  
**UNDERGRADUATE**  
*Studies*



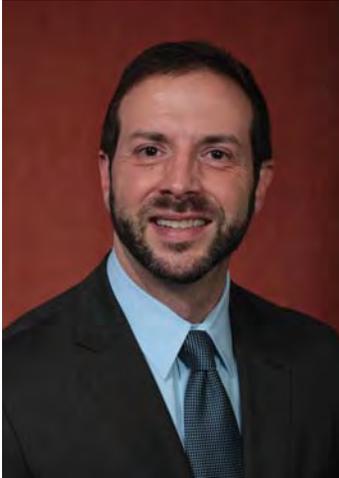
*The Office of National Fellowships extends great appreciation and gratitude to ONF benefactor and former FSU Trustee David Ford.*

The Atlantic Coast Conference Fellowship provides two students each year, who are designated as our ACC Fellows, with the funding to conduct a year-long faculty-mentored research project.

The Undergraduate Research and Creative Activity Awards (URCAA) and The Mentored Research and Creative Endeavors Awards (MRCE) award students the funding to conduct a summer research project or creative activity under the direction of a faculty mentor.



*Special thanks to the FSU Student Government Association for their generous support of the symposium reception.*



**D. Craig Filar, Ph.D.**  
*Director, Office of  
 National Fellowships*

Welcome to the 2011 Undergraduate Research and Creative Activity Awards (URCAA) Symposium! Join us tonight in celebrating outstanding undergraduate research. The students who will present their projects have enhanced their undergraduate experience by taking on directed research and creative activity under the supervision and mentorship of some of Florida State University's most distinguished faculty.

Co-sponsored by the Office of National Fellowships (ONF) and the Office of Undergraduate Research (OUR), this event serves as the culmination of the URCAA experience, but the work these students present tonight does not end here. Many of the awardees will continue their intellectual pursuits through honors theses, independent study projects, and graduate research and creative work, both here on our campus and beyond. Their Florida State University-funded research and creative activity will continue to flourish through academic conferences, scholarly journals, and art showcases, festivals and competitions.



**Alec N. Kercheval, Ph.D.**  
*Director, Undergraduate  
 Research*  
*Professor, Department of  
 Mathematics*

This evening's oral presentations are presented by students awarded the Undergraduate Research and Creative Activity Award (URCAA), as well as our two Atlantic Coast Conference Fellowship recipients. Throughout the atrium you will find posters showcasing the research endeavors of student recipients of the Mentored Research and Creative Endeavors Award (MRCE).

Please also join us tonight in recognizing the inspiring gift of The Florida State University chapter of Phi Eta Sigma national honor society for their student-sponsored contribution to undergraduate research at the university. Tonight we honor Phi Eta Sigma for the generous support that has led to the funding of a Mentored Research and Creative Endeavor Award that now bears their name: The Phi Eta Sigma Endowed Scholarship to Enhance Undergraduate Research.

If you're attending this event as a student, we hope you'll be inspired to develop your own research or creative projects. We are pleased to announce the launch of the Summer 2012 URCAA/MRCE application tonight. You can also find this online at <http://onf.fsu.edu>.

We hope that the awards featured tonight have allowed their recipients a rich opportunity to investigate their academic interests while also providing inspiration for a new generation of young researchers to embark upon this journey.



Hannah Barnard is a senior BFA student in FSU's Department of Dance whose choreography has been showcased in department productions. Hannah is currently studying with the FSU in NYC Dance program. Upon receiving her undergraduate degree, she will pursue a professional dance career as a performer, choreographer, and teacher.

Aaron Brown is a senior completing a double major in Classical Archaeology and Humanities.

In addition to supervising excavations at Cetamura, he has conducted research on Etruscan sigla ("graffiti") and binding magic in antiquity. Aaron will pursue advanced degrees in Classical Archaeology.

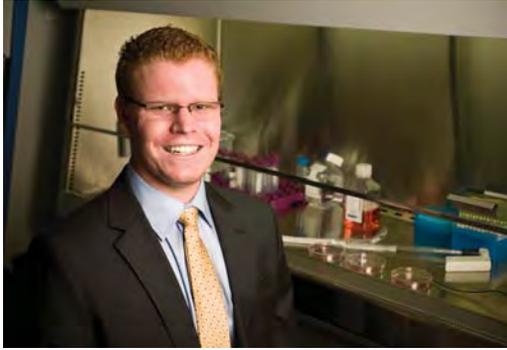


Rebecca Falter is a senior studying Biological Sciences at Florida State University, where she has worked as both a Research Assistant and a Teaching Assistant. After graduation, Rebecca plans to further her education and pursue research at the Interface of Molecular and Computational Sciences.

Dallas Killebrew is a junior double-majoring in Sociology and Economics. He is interested in researching and advocating for the homeless.

Dallas aims to stay at Florida State for the graduate joint degree program in Urban and Regional Planning and Demography.





Joshua Koerner, who was awarded the 2011 ACC Fellowship, is a senior majoring in Biological Science. His honors in the major research, under the direction of Dr. Jonathan Dennis, is to understand how diet might influence the organization of DNA in the nucleus, and its role in disease prevention. After graduation he plans to study medicine and continue scientific research.

Rebekah Landbeck, a Psychology major, is currently conducting honors thesis research under Dr. Walter Boot. Involved in research since the day she arrived at FSU, she plans to pursue a doctorate in Clinical Psychology with an emphasis on Cognitive Psychology.



Emily Lee is a senior Biology major in her third year of research in Dr. Hengli Tang's lab. Her research involves various aspects of HCV virus-host interactions, with a particular emphasis on the study of differentiated human hepatocytes and HCV infection.

Rachel Lubitz is a senior currently employed as a Peer Mentor for the FSU Center for Global and Multicultural Engagement. She also founded Empowering Women Globally, a student organization focusing on poverty reduction, sustainable development and international peace through gender equality.





Lindsay Ogles, a senior Humanities major from Clearwater, Florida, is pursuing research concerning the ideological practices within child evacuation camps during the Second World War. This research continues her emphasis in Twentieth Century History and her focus on Germany and its people—particularly the youth of the nation.

Manuel Ozambela is currently a senior majoring in Biological Science from Naples, Florida. He is completing an honors thesis to develop biomarkers to identify drug resistance in brain tumors under the mentorship of Dr. Cathy Levenson in the College of Medicine and Dr. Victor Schepkin at the National High Magnetic Field Laboratory. Upon graduation Manny plans to attend medical school.



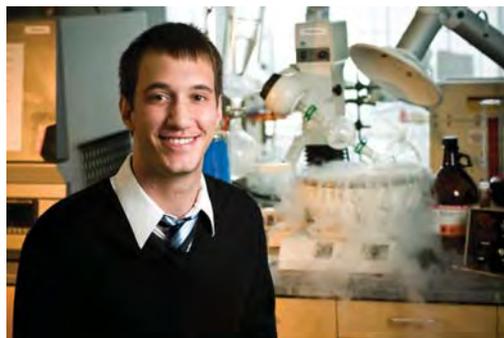
Cassidy Phelps is a senior pursuing a dual degree in Classical Archaeology and Greek and Latin with minors in Art History and Humanities. After graduation, she plans to pursue a Ph.D. in Classical Archaeology.





Marium Rana is pursuing a BFA in Studio Art. She is the director of Project Downtown Tallahassee which encourages members of the community to work closely with the homeless and disadvantaged. Marium has also worked with international nonprofits. She hopes to get her MFA in Painting and MA in Art Education.

Kyle Serniak, an undergraduate studying Physics and Applied Mathematics, has been involved with research in Dr. Stiegman's Physical Inorganic Chemistry Group since his first year. He plans to pursue a graduate degree in Physics to research alternative energy sources.



Robert J. Wandell is a senior in Chemical Engineering with a broad interest in the sciences. In the future, he plans to pursue a career in the energy industry in hopes of decreasing the world's dependence on fossil fuels. Robert is the recipient of the David B. Ford Undergraduate Research and Creative Activity Award.

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5:30 - 7:30 p.m. **Poster Presentations, Atrium**  
7:30 p.m. **Reception, Room 208**

5:40 p.m. **Welcome, Room 208**

*Dr. Eric J. Barron, President, The Florida State University*  
*Avi Assidon, President, Student Government Association*

**Recognitions by**

*Dr. Karen Laughlin, Dean, Undergraduate Studies*  
*Dr. D. Craig Filar, Director, Office of National Fellowships*

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6:00 p.m./Room 114

***Analysis of Product Formation in a Non-thermal, Gliding Arc, Plasma Discharge with Water Aerosol Spray in Air***

Robert Wandell

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6:00 p.m./Room 201

***Our Thrones: Mughal Miniature Painting and Social Class in Modern Pakistan***

Marium Rana

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6:00 p.m./Room 205

***Phytochemical Influence on the Structure of the Human Genome***

Joshua Koerner

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6:00 p.m./Room 214

***Nazi Youth and the KLV***

Lindsay Ogles

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6:25 p.m./Room 201

***Heat Transfer Processes in the Selective Microwave Heating of Heterogeneous Catalysts***

Kyle Serniak

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6:25 p.m./Room 205

***Support for Homeless Persons in Florida***

Dallas Killebrew

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6:25 p.m./Room 214

***Differentiated Human Hepatocytes as a Model for HCV Infection***

Emily Lee

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6:50 p.m./Room 114

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***There Is No Rose: Contemporary Choreography Meets the Anglican Choral Tradition***

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Hannah Barnard

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6:50 p.m./Room 201

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***Weaving, Writing and Women: A Study of Etruscan Loom Weights***

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Cassidy Phelps

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6:50 p.m./Room 205

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***Use of High Field Magnetic Resonance Imaging to Identify Chemotherapy-Resistant Brain Tumors***

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Manuel Ozambela

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7:15 p.m./Room 114

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***Rodent Supertree***

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Rebecca Falter

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7:15 p.m./Room 201

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***Alleviating the Aftermath: Relative Effects of Executive Control and Visuospatial Tasks on Disrupting the Consolidation of Post-Traumatic Intrusions***

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Rebekah Landbeck

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7:15 p.m./Room 205

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***Assessing the Background of Short-Term English as a Second Language (ESL) Instructional Volunteers, and their Impact on Local Community Members in Northern Ghana***

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Rachel Lubitz

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7:15 p.m./Room 214

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***The Structure and Function of a Hypothesized Cistern at Cetamura del Chianti***

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Aaron Brown

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**7:30 p.m. Reception, Room 208**

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## UNDERGRADUATE RESEARCH AND CREATIVE AWARDS

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### *There Is No Rose: Contemporary Choreography Meets the Anglican Choral Tradition*

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**Hannah Barnard**

Supervising Professor: Prof. Gerri Houlihan

My three-phase choreographic research project, in collaboration with the Oakland Girls Choir of Pittsburgh, PA, began with a research-based movement development process. I explored a wide range of sources in my attempt to create a solo work of contemporary dance for the piece “There is No Rose,” a choral work arranged in the Bel Canto style by Z. Randall Stroope with text based on a 15th-century anonymous English poem comparing the Virgin Mary to a rose. My sources included books written about the vocal style and technique of Bel Canto, various analyses of the text of the 15th-century poem, Medieval icons depicting the Virgin Mary, time-lapse film footage of blooming roses, and my own personal interpretation of the music and text.

The “Performance and Feedback Stage” represents the second phase of the project. I performed my solo choreography in several locations (primarily Anglican churches) both at home in Pittsburgh and on tour in England with the Oakland Girls Choir. After each performance, I interviewed audience members, inquiring after their thoughts, insights, and opinions regarding both the dance I had choreographed and the overall presence of dance in religious settings, particularly in the context of Anglican worship.

Finally, I began a “Reflection Phase.” I organized each step of the project into a cohesive research paper which I plan to submit for publication to FSU’s Undergraduate Research Journal. I also plan to use everything I have learned through this experience to guide future choreographic endeavors.

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### *The Structure and Function of a Hypothesized Cistern at Cetamura del Chianti*

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**Aaron Brown**

Supervising Professor: Dr. Nancy T. de Grummond

This project was conceived in response to the discovery of a curious circular feature in the Summer 2010 excavations at Cetamura del Chianti, an ancient hilltop sanctuary settled by Etruscans and Romans in the heart of modern-day Tuscany. The crew was only able to probe the very eastern edge of the circular feature in 2010. That campaign turned up a clearly discernable curving cut in a stratum of compacted clay, conjectured to be man-made and part of a much larger circular feature. The goal of my project was to expose more fully the hypothesized circular feature and to ascertain its function, whether ritual, utilitarian, or otherwise.

In May of 2011, a standard 3 x 4 meter unit was laid out to the west of the unit in which the cut had been observed. Over the course of five weeks, a crew, under my supervision, excavated the unit according to standard archaeological procedures, mapping and photographing stratigraphic changes and special finds, processing artifacts, and documenting the daily excavation of the unit. What we discovered was indeed a circular feature: a masonry structure with a diameter of approximately 2 meters. Based on comparisons from other sites, the structure likely held water. Excavation is not yet complete, and it is still uncertain whether the structure was a well, tapping into a source of groundwater, or a cistern, collecting and storing rainwater, though the latter seems likely. Further investigation will be necessary in order to better understand the function of the structure.

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### *Rodent Supertree*

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**Rebecca Falter**

Supervising Professor: Dr. Scott Steppan

My project aims to illuminate the evolutionary relationships between all existing rodents by the creation of a rodent supertree. From an evolutionary standpoint, rodents are interesting due to their diversity (there are

2,277 species that make up 42% of mammalian diversity) and range of habitats. Rodents have also developed social behaviors such as colony behavior in molarats and monogamous pairing in prairie voles that are of interest to psychologists. A full view of rodent evolution could allow scientists to better visualize areas of rapid speciation or the introduction of a new trait throughout rodent history that lead to this diversity.

Current supertrees that include Rodentia are poorly resolved, containing areas in which the relationships between as many as fifteen families of rodents are uncertain, so the purpose of this study is to create a more resolved rodent supertree. The reconstruction of supertrees allows scientists to estimate the evolutionary relationships between species even though there may not be comparable molecular or morphological data for all species in the study. In order to create the supertree, I gathered data from previously published rodent evolution studies and used computer software to consolidate this data into a single matrix and reconstruct a supertree from the matrix.

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## ***Support for Homeless Persons in Florida***

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**Dallas Killebrew**

**Supervising Professor: Dr. Karin Brewster**

In 2010, Florida was the second highest foreclosure state in the nation; in September alone, one in 148 households in Florida received a foreclosure notice. While foreclosures climb, forcing many Florida residents onto the streets, the state government continues to cut funding for programs that aim to serve the homeless. Shelter programs provide temporary services including meals, overnight shelter, and limited health and social services. In contrast, transitional services attempt to transition the homeless back into stable housing by providing not only assistance with immediate social and health needs, but also longer-term supports, including life-skills training and employment assistance.

This research evaluates the needs of the homeless clientele in both temporary shelters and transitional programs, and provides insight into the relative costs and resources of temporary shelters and transitional programs. Findings are based on a qualitative analysis of two shelters in Tallahassee: The Shelter, a temporary assistance program that serves about 2,300 people annually, and the HOPE Community, a transitional program funded by the Big Bend Homeless Coalition that moves about 70% of its residents into stable housing. Through participant observation as a volunteer at both programs, I learned much about the diverse needs of the homeless clients of each program. Semi-structured interviews with staff and directors provided a more in-depth understanding of the long-term resources and costs of each program. Findings revealed the fraught existence of both programs and Florida's need for better coordination of services to the homeless.

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## ***Alleviating the Aftermath: Relative Effects of Executive Control and Visuospatial Tasks on Disrupting the Consolidation of Post-Traumatic Intrusions***

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**Rebekah Landbeck**

**Supervising Professor: Dr. Walter Boot**

Spontaneously occurring images, which intrude into an individual's thoughts, are one of the hallmarks of post-traumatic stress disorder (PTSD) and are one of its most troubling and impairing symptoms. Since it would be unethical to deliberately traumatize people in order to study this aspect of PTSD, the trauma film paradigm was developed, in which participants watch a film with distressing content and the number of intrusions they subsequently experience is measured. A large body of research shows that if participants perform spatial tasks while watching the film, they experience fewer intrusions, while verbal tasks have been shown to increase later intrusions. Spatial and verbal tasks place demands on two of the major components of working memory. There is a dearth of experimental work examining whether placing demands on the third major component of working memory, the executive control function, has any effect on intrusions.

Two recent studies conducted at Oxford demonstrated that performing a visuospatial rotation task, in the

form of playing the computer game Tetris™ a short time after watching a trauma film, resulted in significantly fewer intrusions during the following week. This project tests the possibility that placing a load on the executive control function of working memory after watching a trauma film may be equally as or more effective than Tetris™ at reducing later intrusions. Also examined is a possible alternate explanation for the Tetris™ studies' results.

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### ***Differentiated Human Hepatocytes as a Model for HCV Infection***

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**Emily Lee**

**Supervising Professor: Dr. Hengli Tang**

Hepatitis C virus (HCV) infects greater than 170 million people worldwide, with the current standard of treatment ineffective in the majority of patients. HCV infection becomes chronic in 75-90% of all cases, leading to such progressive liver diseases as fibrosis and hepatocellular carcinoma, which often require liver transplantation. Correspondingly, almost half of patients on liver transplant lists are infected with HCV, which universally reestablishes infection post-transplantation. In light of the reinfection rate and in the absence of an effective prophylactic, I am studying differentiated human hepatocytes (DHHs) as a potential model for HCV infection and as an alternative method for patient treatment. Unlike primary human hepatocytes (as in those harvested from an intact liver) which are limited in their availability and proliferate poorly in vitro, DHHs possess the potential of being genetically modified to an HCV-resistant phenotype. I investigated the permissiveness of DHHs to HCV infection in vitro by differentiating human embryonic stem cells and observed their ability to support viral replication and release infectious particles. This work helps develop a new model for studying HCV host-virus interactions.

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### ***Nazi Youth and the KLV***

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**Lindsay Ogles**

**Supervising Professor: Dr. Nathan Stotlzfus**

During Hitler's Nazi regime, the youth took on a new level of importance. This significance became even more evident with the beginning of child evacuations from larger German cities to areas less populated in order to protect them from the dangers of Allied bombing raids. However, this project openly questions the validity of a commonly held belief within Germany up through the 1990s. By illustrating the propagandistic and party-oriented nature of the evacuation camps at the close of the Second World War, I will challenge the belief that evacuation measures remained solely focused on the health and safety of the Nazi youth, separated from any Party involvement. I will look, instead, at the ways in which the Nazis utilized the Hitler Youth and other sources to separate the children from their families, schools, and religious institutions, gaining the closest resemblance to a monopoly over the youths' development as would have been possible at the time.

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### ***Use of High Field Magnetic Resonance Imaging to Identify Chemotherapy-Resistant Brain Tumors***

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**Manuel Ozambela**

**Supervising Professor: Dr. Cathy Levenson**

Primary brain tumors are responsible for approximately 13,000 deaths per year. Almost 50% of these tumors are gliomas, the majority of which have very low survival rates. For example, the most commonly diagnosed glioma, glioblastoma multiforme, has a five-year survival rate of only 14% in patients younger than 44 years, and as low as 1% over age 55. These grim numbers are in large part due to drug resistant tumors that evade chemotherapeutic interventions and lead to the development of highly aggressive cancer cells with rapid tumor regrowth, and inevitable patient mortality. Thus, this study was designed to develop magnetic resonance imaging (MRI) biomarkers that will enable us to predict the level of drug resistance of an individual tumor and contribute to the design of new therapies to overcome resistance. To accomplish this, we first developed

a series of rat 9L glioma cell cultures that are resistant to the chemotherapeutic agent carmustine (BCNU). BCNU-resistant and BCNU-sensitive cells (105) were surgically implanted into the brains of male Fisher rats. The resulting tumors were analyzed by magnetic resonance imaging (MRI) using the 900 MHz, 21.1 Tesla magnet and techniques developed at the National High Magnetic Field Laboratory. The technology used represents the highest available resolution for in vivo studies in the world. Using these novel techniques we were able to measure the time course of both sodium and diffusion in vivo following BCNU treatment. Our data also show that the difference between tumors created by non-resistant and resistant cell lines is statistically significant for both sodium concentration ( $n=5$ ,  $p=0.0003$ ) and diffusion ( $n=5$ ,  $p<0.012$ ). However, sodium MRI was more sensitive to resistance. These data show the potential of using sodium MRI to non-invasively identify drug resistance in brain tumors and pave the way for the development of individualized therapies for patients with aggressive brain tumors.

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## ***Weaving, Writing and Women: A Study of Etruscan Loom Weights***

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**Cassidy Phelps**

Supervising Professor: **Dr. Svetoslava Slaveva-Griffin**

Cetamura del Chianti is an Etruscan habitation site with a sanctuary and an artisans' area. Among the archaeological finds from the site, there are many weaving implements. I studied these artifacts in the site laboratory, focusing primarily on loom weights in order to learn more about the art of textile production in antiquity. Loom weights, the most frequently found weaving implement at Cetamura, were often incised with marks (sigla). Cetamura has a proportionally high number of loom weights with sigla, perhaps due to the presence of a sanctuary. These symbols have yet to be interpreted, but are often repeated throughout Etruria on all types of artifacts. I also studied the loom weights from La Piana, a nearby Etruscan site, to compare the sigla with those from Cetamura, finding that many were the same. Loom weights are found in sites throughout Etruria, and I strove to find more comparisons from habitation sites like Cetamura. The art of weaving in antiquity is primarily associated with women, and my research seeks to show how it affected or expressed a woman's role in society. The presence of sigla on weaving implements indicates that women, as well as men, in antiquity possessed some form of literacy. Further research is needed in order to determine conclusively the meaning of sigla on weaving implements as well as the reason these marks appear, but the data I have collected on Cetamura and other similar sites creates a foundation for research to continue.

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## ***Our Thrones: Mughal Miniature Painting and Social Class in Modern Pakistan***

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**Marium Rana**

Supervising Professor: **Prof. Lillian Garcia-Roig**

Miniature painting is a classical style of art that was flourished in the imperial courts of the Mughal Empire. It draws influence from the Persian Empire back to the reign of Timur in 1398. Early Mughal emperors were patrons of the arts and commissioned modified stylistic portraiture. This artistic approach had a strong history of Mughal royal portraits and illustrative work of folklore. Miniature painters were less concerned with realistic documentation and focused on creating work for the sake of modified aesthetics that would compliment the composition of the painting. Most miniature paintings from this time period were only a few centimeters in size. The painting technique encouraged patience, humility, and aesthetic balance.

I went to Lahore, Pakistan to learn how this historical painting style was actually put into practice. Very few individuals still practice this art form. I worked with Professor Naheed Fakhar of the National College of Arts in Pakistan. The learning experience mimicked that of master painters and their apprentices.

I also had the opportunity to work closely with the Punjab Welfare Trust for the Disabled. I documented the experience in Pakistan through photography and painting resources. The contrast between social classes I saw have helped me develop a series of paintings that record the class differences that exist in Pakistan and many other parts of the world.

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## ***Heat Transfer Processes in the Selective Microwave Heating of Heterogeneous Catalysts***

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**Kyle Serniak**

Supervising Professor: Dr. Albert Stiegman

Experimental evidence has shown an unexplained increase in reaction rates during catalytic processes when heating by microwave irradiation relative to traditional thermal processes. These reaction rates fluctuate with temperature and most traditional measurement techniques average temperatures over a surface area. This method is not suited for the unique conditions inside of a microwave reactor when very small heterogeneous catalysts are present. This is due in part to the selective nature of microwave heating, in which some materials will heat faster than others. There are a few physical properties, such as the dielectric constant, dipole moment, and viscosity, among others, which contribute to an overall “microwave absorptivity” which has a direct correlation to the material’s ability to absorb microwave radiation. We believe that it is not the reaction rates that are increased, but the temperature of the catalytic sites.

The reaction rates observed correspond to a much higher temperature than what was read by an infrared or fiber optic probe within the microwave system. In order to account for the error associated with these methods in the given environment, we have solved a system of differential equations which describes the rate of heat transfer between each species. After a series of heating experiments, we were able to solve a system of steady state equations for variables such as the microwave absorptivity of the species as well as the heat transfer coefficients. With this information, the temperature of the catalytic sites can be determined which elucidates the observed reaction rates.

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## ***Analysis of Product Formation in a Non-thermal, Gliding Arc, Plasma Discharge with Water Aerosol Spray in Air***

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**Robert Wandell**, The David B. Ford Undergraduate Research and Creative Activity Award

Supervising Professor: Dr. Bruce Locke

This study investigates a non-thermal, gliding arc, plasma discharge to generate useful chemical species from air and water. Previous work has shown that many types of plasma reactors, including microwave, corona and AC gliding arc, can generate hydrogen, hydrogen peroxide, and nitrates. However, the energy efficiency of these methods is relatively poor. By utilizing a low energy pulsed power supply in combination with an aerosol spray, we have shown significant improvements in the energy efficiency to generate some of these chemical species. The energy yield to produce hydrogen peroxide is particularly improved. While previous work focused on argon as the carrier gas, this study focuses on ways to improve efficiency by utilizing air as the carrier in order to decrease the cost of operation.

To develop a better understanding of the key factors involved in the system, a new reactor was built so that we can easily change the characteristics of the plasma discharge by varying the electrode shape and the nozzle configuration. By varying these factors and analyzing their effects on the species that are generated, including hydrogen peroxide and nitrate as well as monitoring changes in pH and conductivity, we have developed an improved understanding of the reactions that are taking place. This presentation will focus on the effects of using curved angle verses straight angle electrodes, as well as the impact of the angle at which they are oriented to one another. Additionally, the effects of variation of the inside diameter of the nozzle on the performance of the system will be presented.

## ATLANTIC COAST CONFERENCE FELLOWSHIPS

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### *Phytochemical Influence on the Structure of the Human Genome*

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Joshua Koerner

Supervising Professor: Dr. Jonathan Dennis

Many non-inherited factors play a role in the epidemiology of cancer. Several studies have suggested that a dietary increase in fruits and vegetables containing compounds like Luteolin, used in this study, would reduce the new instances of cancer by 20% and potentially prevent 200,000 cancer-related deaths annually. Herein, we demonstrate that Luteolin may exert its anti-cancer effect by altering the organization of DNA in the cell. Each cell in the human body contains approximately four meters of DNA organized into the nucleus, a compartment that is five one-hundredths of a millimeter. This almost unbelievable compaction is facilitated by the association of negatively charged DNA with positively charged proteins that form a complex called chromatin. The organization of chromatin regulates access to DNA sequences. Our lab investigates factors that regulate the organization of chromatin, thereby regulating access to the genome. In this study we have identified specific genomic locations where chromatin accessibility changes in response to Luteolin treatment. Importantly, these genomic locations contain members of one of the most important families of cancer genes, cell cycle regulators. Our results allow us to propose a new model in which the physical organization of the genome plays a role in cancer prevention.

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### *Assessing the Background of Short-Term English as a Second Language (ESL) Instructional Volunteers, and their Impact on Local Community Members in Northern Ghana.*

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Rachel Lubitz

Supervising Professor: Aleks Nestic

The amount of volunteers teaching English abroad has increased dramatically in recent years, but it has been argued that there has been little evaluation or understanding of its true impact. Moreover, international volunteers placed in a community for a short period of time may not be as effective as predicted by their sponsored organizations because of a lack of preparation or intercultural dialogue training. It has also been suggested that volunteer teaching work can be ineffective or even harmful for many reasons: substituting volunteers in place of local teachers, language gaps, inconsistencies caused by the sponsoring organization and conflict caused by cultural differences or ethnocentrism.

After traveling to Northern Ghana to teach English in 2010, I noticed many of these problems occurring, and hoped to create a more collaborative and reciprocal exchange between the volunteers and the communities in which they work, as I believed this would foster a more comprehensive and effective education initiative.

This qualitative study surveyed volunteers from an international volunteer organization, and community members from four villages: Wulanyilli Village, Kalariga Village, Vittin Village and Jantong Village. I evaluated the training, experience, motivations and overall background of volunteers teaching English in Tamale, Ghana. Additionally, I interviewed local men and women from these host villages to gain a better understanding of the perceptions of these community members. Within both sets of surveys, I hoped to foster a more heightened awareness of what the true impact is of these volunteers on these host communities.

## MENTORED RESEARCH AND CREATIVE ENDEAVORS AWARDS

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### *Shakespeare: A Love Story*

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**Jacquie Alberto**

Supervising Professor: Dr. Krzysztof Salata

Jacqueline Alberto is currently a senior Bachelor of Arts Theatre major from Miami, FL with interest in performance and direction. Her research was focused on an actor-driven theatre and collective creation using Shakespeare's Romeo and Juliet and The Taming of the Shrew.

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### *Ego Depletion and Perception*

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**Jessica Borushok**

Supervising Professors: Dr. Dianne Tice and Dr. Roy Baumeister

Jessica Borushok is a senior Psychology major currently working on her honors thesis under the direction of Drs. Tice and Baumeister. After graduating, she hopes to pursue her Ph.D. in Clinical Psychology.

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### *An Examination of a Nonpurging Compensatory Eating Disorder*

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**Heather Davis**

Supervising Professor: Dr. Pamela Keel

Heather Davis is a senior from Pembroke Pines, FL majoring in Psychology. She is currently working on her honors thesis under the direction of Dr. Pam Keel in the Psychology Department. After graduation, she aspires to attain her Ph.D. in Clinical Psychology and study eating disorders.

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### *Synthesis of Modified Colchicine for Experiments on Meiosis*

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**Katherine Easterling**

Supervising Professor: Dr. Hank Bass

Katherine Easterling, a Biological Science major, is interested in natural products chemistry. She has been working with Dr. Hank Bass (botany/molecular biology) and Dr. Mark Kearley (organic chemistry). She plans to attend graduate school exploring the field of plant drug discovery.

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### *Polyelectrolyte Complexes for Biomedical Usage: Catalytic Polyvalent Ion Pairing in Polyelectrolyte Complexes*

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**Sari Faye**

Supervising Professor: Dr. Joseph Schlenoff

Sari Faye lived near Boston, MA until moving to Naples, FL before her freshman year of high school. Sari is double majoring in Chemistry and Biochemistry, and is interested in Forensics as well as eventually becoming a professor.

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### *Compound Impulse: Form and Function*

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**Stephen Fuller**

Supervising Professor: Prof. Terri Lindbloom

Stephen Blake Fuller is a senior Art History and Studio Art major intent on studying art at the graduate level. Focused on the poetic articulation and entanglement of deluded creative and destructive drives, he is working on a sculpture driven honors thesis under the direction of Professor Terri Lindbloom.

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### ***How College Students Make Decisions about Medication to Treat Their ADHD Symptoms***

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**Melissa Gagliardi**

Supervising Professor: Prof. Eileen Cormier

Melissa Gagliardi will graduate in Spring 2012 with a B.S. in Nursing. She plans to adapt a holistic philosophy to the care of her future patients. She will continue doing research to better understand the physical, mental, and nutritional aspects of human health so that she can apply that knowledge to her nursing practice.

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### ***“Be a Bro”: Identity in a Christian Fraternity***

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**Ben Gurrentz**

Supervising Professor: Dr. Amy Burdette

Ben Gurrentz is a senior double majoring in Religion and Sociology. He is interested in the relationship between evangelical Christian groups who borrow elements of secular culture and their sense of distinct Christian identity. He plans to pursue a Ph.D. in Sociology.

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### ***Start of a Second Front, End of an Empire: Hitler, Barbarossa, and the Road to Defeat***

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**Christopher Hansford**

Supervising Professor: Dr. Jonathan Grant

Christopher is a senior in the History department and is on track to receive his undergraduate degree less than three years after starting at FSU. He is originally from Boston, MA and his academic focus is on Eastern and Central European Industrial military conflicts.

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### ***Investigation of Kynurenic Acid in Cognitive Dysfunction Associated with Schizophrenia***

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**Baileigh Hightower**

Supervising Professor: Dr. Joshua Rodefer

Baileigh Hightower is a senior Psychology and Religion double major concentrating in Neuroscience. After graduation her goal is to continue research in Neuroscience at the graduate level, focusing on the neurobiological underpinnings of neuropsychiatric disorders like schizophrenia and aspects of addiction.

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### ***The Recurrent Usage of Daniel in Apocalyptic Movements in History***

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**Zachary Kermitz**

Supervising Professor: Dr. Matthew Goff

Zachary Kermitz is a senior from Camden, NC studying International Affairs and Religion. In addition to his research he is a member of the FSU World Affairs Program and is the Director of Administration for the FSU First Responder Unit.

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## ***A Study of Iranian Female Cinema and Theatre Produced in the United States***

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**Roya Pippin**

Supervising Professor: Dr. Irma Mayorga

Roya Pippin is a senior double major in Theatre and Creative Writing. Hailing from Melbourne, FL, her research interests are embedded in Iranian female artists and how their creativity and freedom of speech is directly impacted by the Iranian government. Upon graduation, she intends to volunteer with Teach for America and pursue a Masters of Fine Arts in Playwriting when her service is concluded.

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## ***Functional Dynamics in DNA Repair: Simulation Study of DNA Translocation in the MutM Enzyme***

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**Daniel Stribling**, The Phi Eta Sigma Endowed Scholarship to Enhance Undergraduate Research

Supervising Professor: Dr. Wei Yang

Dan Stribling is a student of Chemistry entering his third year at Florida State University. Dan originally hails from Tampa, FL, but has also spent time living in Dayton, OH, and Wichita Falls, TX. He has spent the last year working in the lab of Dr. Wei Yang in the field of Computational Chemistry and plans to pursue an honors thesis.



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