

Arts & Sciences

Research Conference and Exhibition

Spring 2010

BIOLOGY

Fujiwara, Mai and Marion Peyressatre (Biology)

ANALYSIS OF TUBULIN: HSP70 INTERACTION IN *CHLAMYDOMONAS REINHARDTII* DURING FLAGELLA REGENERATION BY IMMUNOPRECIPITATION

Faculty Mentor: Adams, Mike

Upon pH shock, the single-celled green algae, *Chlamydomonas reinhardtii*, is known to shed its flagella. Deflagellation has been predicted as a way of minimizing the cell's surface area when exposed to toxic environment. When placed back in their normal environment, the cells regenerate a new set of flagella in next 90 minutes. The mechanism of flagella regeneration is highly complex; several hundred types of proteins work together to complete this process in a relatively short period of time. In addition to the flagella proteins (the most prevalent being tubulin), the chaperone protein HSP70 is also highly expressed upon deflagellation. The primary focus of our experiment is to determine if HSP70 and tubulin interact with each other after deflagellation. SDS-PAGE was performed to analyze the pool of proteins present in control and deflagellated cells. Co-immunoprecipitation was performed isolate tubulin from the total soluble protein extract. A Western blot was then done to demonstrate that HSP70 was also in this sample, thus suggesting an interaction between the two proteins. This experiment provides us with an insight into mechanism of flagella regeneration in *C. reinhardtii*.

Peyressatre, Marion and Mai Fujiwara (Biology)

TUBULIN: HSP70 CO-IMMUNOFLUORESCENCE IN REGENERATING *CHLAMYDOMONAS* FLAGELLA

Faculty Mentor: Adams, Mike

Chlamydomonas reinhardtii is a green algae widely used in the laboratory, which has two anterior flagella with which they can swim in a breast-stroke type motion. Upon pH shock, it is known to shed its flagella. Deflagellation has been predicted as a way of minimizing the cell's surface area when exposed to toxic environment. When placed back in their normal environment, the cells regenerate a new set of flagella in next 90 minutes. Indirect evidence obtained from *in vitro* translation of polyribosomes and mRNA from deflagellated gamete (Weeks, D. P. & Collis, 1976) has indicated that flagellar regeneration is accompanied by a strong but transient induction of tubulin synthesis (Weeks, D.P. et al., 1977). At the same time, the chaperon protein HSP70 is also highly expressed upon deflagellation. Our previous result showed an interaction between tubulin and HSP70 through co-immunoprecipitation. The primary focus of this experiment is to

use confocal microscopy to co-localize tubulin and HSP70 after deflagellation. This experiment will provide us with an insight into the mechanism of flagella regeneration in *C. reinhardtii*.

Hackenyos, Douglas (Biology)

THE EFFECTS OF PROLACTIN SUPPLEMENTATION ON OSMOREGULATORY GILL TISSUE DURING ATLANTIC SALMON SMOLTIFICATION

Faculty Mentor: Booth, Charles

The overwhelming majority of the more than 21,000 teleost fish species live either solely in fresh water or salt water, being physiologically adapted to such conditions. Of these, there are approximately 200 species that are considered diadromous, including the anadromous Atlantic salmon (*Salmo salar*), which spawns in fresh water and migrates to the ocean to mature. Current understanding of the physiological mechanisms necessary for undergoing such demanding environmental changes is limited. In preparation for migration downstream to the ocean, juvenile salmon undergo a physiological process known as smoltification, in which the gills and other tissues adapt for osmoregulation in seawater. It is believed that various hormones produced by the neuroendocrine system of the fish play a significant role in controlling this process. The steroid hormone, prolactin, is thought to be involved in smoltification, though its exact role is not clear. To better understand the effects of prolactin in smoltification, Atlantic salmon pre-smolts were supplemented with different concentrations of prolactin. The research was performed at the S. O. Conte Anadromous Fish Research Center in Turners Falls, MA. Gill tissue was collected, sectioned, and analyzed using immunocytochemistry techniques to identify changes in chloride cells, which play a key role in adapting the gills for saltwater. Cell counts and cell fluorescent imaging techniques were used to analyze chloride cell characteristics from four experimental treatment groups. Better understanding of the effects of prolactin in the neuroendocrine control of smoltification will potentially allow for greater success in Atlantic salmon rearing, stocking, and fisheries management efforts.

Schmid, Rachel (Biology)

THE EFFECT OF THE ESSENTIAL OIL AND ITS COMPONENTS FROM *MELALEUCA ALTERNIFOLIA* ON ENDOSPORE GERMINATION IN *BACILLUS CEREUS*

Faculty Mentor: Koning, Ross

The oil of *Melaleuca alternifolia*, tea tree, has been shown to exhibit broad spectrum antimicrobial activity. By using *Bacillus cereus* as a model organism for *B. anthracis*, tea tree oil's ability to prevent or delay endospores germination along with the component(s) of the oil responsible for this action was tested. The activity of eight of the main components of the oil including terpinen-4-ol, γ -terpinene, α -terpinene, 1,8-cineole, α -pinene, *p*-cymene, α -terpineol, and limonene was tested using a disc diffusion method. Synergisms between the active components and between the active and inactive components were also evaluated. Terpinen-4-ol, α -terpinene, and α -terpineol were active against the endospores, with α -terpinene exhibiting the greatest degree of synergisms with the inactive components. Parallel work with *B. anthracis* endospores in containment laboratories appears promising and revision of the required standard concentrations for some of the components of the oil is suggested.

Turner, Anissa C. (Biology)

EVALUATION OF PHENOLIC DEFENSIVE CHEMICALS IN NATIVE AND INVASIVE COMMON REED (*PHRAGMITES AUSTRALIS*)

Faculty Mentor: Lambert, Adam

The economic and ecological impacts of non-native, invasive species are estimated to cause hundreds of billions of dollars in losses each year in the United States alone. To reduce these impacts, it is essential to understand the biological mechanisms that promote invasiveness in some species. Common reed, *Phragmites australis*, is a native North American plant that is important in the food webs of wetland ecosystems. However, in the late 1800's a European common reed genotype was introduced and is now abundant in areas that were once colonized by only native genotypes. A European aphid (a sap feeding insect) has also been introduced with invasive common reed, but prefers to feed on native reed plants, causing substantial damage in the few remaining populations. To understand why native populations are more susceptible to herbivores, we analyzed levels of plant defensive chemicals (phenolics, the primary class of non-structural defensive chemicals) in the plant sap of native and invasive genotypes. The phenolic concentration of native, Gulf Coast, and exotic *P.australis* were analyzed by the Folin-Ciocalteu method. Our study showed that the invasive genotype had significantly higher phenolic concentrations than native or Gulf Coast genotypes suggesting that higher levels of defensive chemicals in the invasive genotype provide greater defense against aphid herbivores. Reduced herbivory may lead to greater growth in invasive plants and facilitate the displacement of native populations.

COMPUTER SCIENCES

Park, Michael (Computer Science)

DETERMINISTIC METHODS FOR DEVELOPING SHAPE DESCRIPTORS IN TWO AND THREE DIMENSIONS

Faculty Mentor: Rosiene, Joel

Fourier Shape Descriptors and Spherical Harmonics are routinely used for shape description of two and three dimensional objects, and have many advantages when it is necessary to compare two shapes independent of rotation, starting point, or magnification. This is particularly useful in applications involving biomedical imaging data. Optimization techniques exist to obtain parameterization of discrete samples of objects suitable for calculation of Fourier Shape Descriptors and Spherical Harmonics. The aim of this project is to develop a method using ray casting to develop a periodic complex-valued function of the boundary parameterized to arc-length. By bounding an n-dimensional irregular shape inside an n-sphere, it is possible to use suitably close radii to detect the boundary of the shape. Initially, this will be done with two-dimensional objects, and then generalized up to three, and eventually n-dimensional objects. This ray casting method is not boundary-following, which means the worst case scenario is easily calculated. This method also lends itself readily to parallel processing, making it highly suited to real-time applications.

Svirshchevsky, Oleh (Computer Science)

DESIGN AND IMPLEMENTATION OF AN EMBEDDED SUPERVISORY CONTROL FOR A ROBOTIC PLATFORM

Faculty Mentor: Rosiene, Joel

Computers are being embedded into everything from LED lighting to car control systems. Increasingly, mechanical linkages are being replaced by computer controlled actuators working semi-autonomously, in these cases a remote supervisor can be used to prevent run-away operation.

The objective of this project is to interface an embedded device to control multiple micro-stepping motors which handle the robot's movement with relatively high precision. This device is to have an easy to implement interface allowing third party software to move the robot around by sending it simple commands over UDP. The supervisory software on this device should allow both manual driving of the robot as well as distance driving. Manual driving is useful for direct human control of the robot. Distance driving is useful if you need the robot to drive for a precise distance and to turn right/left at a precise angle. Examples of distance driving would be autonomous applications that are trying to map out a geographical area, or having the robot follow a specific path. The real-time supervisory software on this device is to be fail-safe; it is to stop immediately if a heartbeat signal from the PC disappears. This is simple, but very important. If for example the third party software moves the robot out of the wireless range (and thus the robot becomes uncontrollable), it should stop immediately. To achieve this supervisory control, an Atmel NGW100 board running embedded Linux was used; because it was already available and also because it has many General Purpose I/O ports, which would allow things like sensors to be interfaced to it.

ENGLISH

Falck, Nicholas (English)

FRANKENSTEIN: THE MONSTROSITY OF MADNESS

Faculty Mentor: McGowan, Marcia

Within popular culture whenever the name Frankenstein is mentioned, people immediately associate it with the monster and not its creator, Victor. Not only is this evident in language, but also in visual representation, whether in media such as film or television, or in costumes or masks. This amalgamation is understandable, as Frankenstein and the monster can indeed be interpreted as being the same person, the monster being one-half of Victor's divided personality. As many literary critics have noted, this notion of the divided self or "doppelganger" is no stranger to the Gothic novel. In the case of Mary Shelley's *Frankenstein*, Victor and the monster constitute one being, as the monster is a manifestation of Victor's madness. There is much evidence within their narratives which constitutes the notion of the monster's nonexistence as a living entity. The monster that Victor creates is a manifestation of his guilt and denial--more specifically, Victor's denial of family and domestication in pursuit of his obsessive passion to succeed in his experiment.

Fitzgerald, Jamie, Patricia Haggard, Rebecca Leon (English), Katherine Ciarlo and Alison Schiller (Communication)

WHERE'S THE SWEET SPOT? WRITING A SUCCESSFUL STORY FOR CHILDREN AND YOUNG ADULTS

Faculty Mentor: Fraustino, Lisa Rowe

We believe that the views of the next generation are shaped through the work of today's upcoming children's book creators. We have been inspired by a writing workshop (Writing for Children and Young Adults, Eng 309), the professional Society of Children's Book Writers and Illustrators Winter Conference in New York City, and an independent study with goals toward publication. At this year's Arts and Sciences Research Conference and Exhibition, we would like to present a poster showcasing the art of writing for children and young adults.

Our presentation will include specifics from five genres. Literary fiction usually has deep characters and complex themes while commercial fiction boasts a gripping plot; the sweet spot for writers is to achieve both of these. There are specific goals for a writer of fantasy novels in today's market. The ambition of a well written picture book is to achieve a connection between an adult reader and a listening child. When writing for the children's market, non-fiction is an easier sell than fiction due to the popular themes that non-fiction publishers are looking for, such as history, biography, animals, fact and figure books, and sports. Tips learned from media managers can help writers adapt their stories to all forms of visual media.

Our poster will include samples of our work that illustrate these principles, as well as advice gathered at the SCBWI Winter Conference from today's leading authors, illustrators, editors, publishers, and agents.

Gilroy, Kileen (English)

POETRY IN PROGRESS

Faculty Mentor: Donaghy, Daniel

As an aspiring poet of almost 10 years, I have been asked and contemplated the reasons as to why I write poetry. I believe several of these reasons have to do with the idea of expressing myself, sharing my story, connecting with others, and being a part of a beautiful artistic movement, that I do not believe always receives the credit and attention it deserves. Although all of these reasons, among several others are true, it was not until I read a response from contemporary slam poet, Saul Williams, which captured exactly how I feel. He said, "I write poetry because it is the clearest and most direct expression of how I think." I couldn't identify with these words more. I write the way I think, the way I feel, the way I see the world, and how I believe the world sees me; I write because there is something inside of me that *needs* to, that just *does*. Part of "doing" also pertains to sharing my work with an audience. Often times, people neglect that poetry is an oral art and is meant to be read aloud. This will be my third year participating in the Research Arts and Exhibition. Not only do I find this experience as an opportunity to showcase my work and development as a writer, but I am also honored to share

my work with the University that helped me reach this point in my life.

At this point in my life, I am writing a manuscript of poetry in hopes to publish my own book. After being published in several literary magazines and webzines, I believe this is the next step. The poems I will be sharing at this conference will be pieces from this work in progress. I have found that the common theme threading these pieces together is identity with a variety of subjects, including family history, relationships, sexual abuse, and also larger issues, such as 9/11. This collection of work aims to bring my poetry to the next level in terms of subject matter and experimenting with various poetic forms, such as a cento and a formula poem. Although I am still writing new poems for the manuscript, this has already been quite the process and experience. I am constantly asking myself, *Where will I go from here?* I really do not have these answers, but for now, my goal is to finish my manuscript by summer and read at Eastern's Research Conference and Exhibition.

Glass, Christina (English)

NARRATIVES OF EXPERIENCE: A RHETORICAL ANALYSIS OF GENDER AND STUDENT WRITING

Faculty Mentor: Rosenberg, Lauren

When I first read that there could be some differences between how I write and how men write I became immediately intrigued. I thought that I would explore gender and writing as the subject of my Honors Thesis in English. I was interested in the idea that men and women may write differently and that there may be something inequitable about the way these writing differences are gendered. The more I read feminist scholarship for my honors thesis, the more I began to notice instances of gender differences all around me, differences that were not noticeable at the surface. I hoped that an understanding of the theories and ideas that underlie my writing could give me insights that will make me a better teacher.

Compositionist and transgender theorist Jonathan Alexander, argues that an application of transgender theories to pedagogical practices will enable teachers and feminist/trans theorists to better understand gender performance by considering gender as a material and embodied reality that is both socially constructed and performed. Alexander designed an activity based upon the work of Will Hochman's "paired fiction writing" from which I have based my project. Paired fiction involves students divided into pairs working collaboratively to create a fictional story through a series of prompts. In Alexander's assignment students construct their fictional stories from what they perceive to be the experiences and assumptions of someone of an opposite gender.

I chose to use this creative writing assignment in hopes of receiving similar fascinating and clever stories that resulted from Alexander's study. I conducted my study in two 10th grade English classrooms, and now I am analyzing students' narratives. My analysis of these narratives will reveal some of the stereotypes, clichés, and familiar tropes upon which many narratives depend for their intelligibility and accessibility to a variety of audiences. In revealing these assumptions, I hope to achieve among the students and myself an understanding of the hidden gendering in their writing and ideas. By understanding students' multiple perspectives, I

will be better able to grasp how students define themselves and act based upon culturally imposed gender stereotypes.

At the research conference I plan to explain my project and discuss the results of my study thus far.

Harner, Kathryn (English)

A STEP TOWARD EQUALITY: EDUCATING CATHERINE IN NORTHANGER ABBEY

Faculty Mentor: McGowan, Marcia

Many critics believe that instead of taking a feminist perspective in her works, Jane Austen mocks women for their ignorance and lack of education. Catherine Morland, the heroine in Austen's novel *Northanger Abbey*, is a naïve country girl who enters society in the city of Bath for the first time and does not know how to make her own judgments about whom she meets. In Bath, she encounters Henry Tilney, her future husband who takes on the obligation of teaching her to question society and understand abstract thought. Before meeting him, Catherine's education is limited to partaking in domestic chores, reading gothic novels and memorizing witty sayings without grasping their full meanings. When Austen wrote *Northanger Abbey*, only wealthy white males received a good education. Her portrayal of Catherine does not champion the patriarchal system in which she is trapped; it is an accurate representation of a woman's position in Austen's time. While it is true that Henry Tilney will always have the dominant role of teacher in Catherine's life, making their relationship unequal, Catherine's intellect develops through his teaching, and she ultimately finds happiness because she rejects the notion of remaining a weak, ignorant female and challenges herself to become an informed, curious human being. Their marriage will remain unbalanced, but it is Catherine's best chance at happiness in a time when society deemed women to be inferior to men. This message is strengthened by the novel's other female characters: Mrs. Allen, a wife who has no thoughts of her own except when it comes to fashion; and Isabella, a single woman who, single-mindedly, tries to elevate her social standing through marrying a wealthy man, leaving her both desperate and ignorant.

Leonard, Wayland (English)

CLASS STRUGGLE AND REVOLUTION IN MARY SHELLEY'S *FRANKENSTEIN*

Faculty Mentor: McGowan, Marcia

Mary Shelley's classic novel *Frankenstein* is largely perceived as a work of science fiction or horror. However, given the biographical information regarding Shelley's life and the political climate in which she lived, it is far more likely that the narrative reflects the political landscape of nineteenth century Europe. There are many instances in Shelley's novel that reflect notable historical events of the period and illustrate the inequalities and injustices that the lower classes faced. Essentially *Frankenstein* serves to warn European aristocracy that they must allow essential reforms or be confronted with revolution. Unfortunately, during the time of its publication, prevailing sexist ideology prevented critics from recognizing the obvious political implications of *Frankenstein*. Because politics were viewed as a field for men only, the politics of the novel were overlooked because of the author's gender. However, considering Shelley's

main influences and family tree it is impossible to perceive that the novel is anything but political.

Maynard, Eric (English)

THINKING OUTSIDE OF THE WRITING CENTER: THOUGHTS AND IMPRESSIONS OF THE NATIONAL CONFERENCE ON PEER TUTORING IN WRITING

Faculty Mentor: Malenczyk, Rita

The National Conference on Peer Tutoring in Writing (NCPTW) 2009, featured a wide variety of sessions on the subject of college and university Writing Centers. The faculty and student presentations focused on concepts reaching beyond the basics of the Writing Center mentality, while maintaining an air of familiarity for those, tutors and tutees, accustomed to the tutoring experience of the Writing Center. The NCPTW sessions included discussions on race issues within and outside of the Writing Center, and the perception of the “autonomy” of the Writing Center. The speakers and presenters of the NCPTW, due to an emphasis on the expansion of the scope of topics which relate to the Writing Center experience, provided insight into factors, both positive and negative, which impact tutoring sessions. The NCPTW sessions, then, pushed the boundaries of what is expected in dialogues having to do with the Writing Center experience, encouraging tutors and faculty to examine their place as mentors, teachers and, ultimately, as fellow writers. In this presentation I will discuss the impact of the conference on my perception of the tutoring process, as a tutor, student and writer.

Nagle, Amanda (English)

HALFWAY HERE

Faculty Mentor: Torokio, Christopher

Noelle Lewis is a young woman who wakes up to find she’s living a life she hadn’t anticipated—working an uninspiring job she never wanted, and with every passing day losing a little more hope of ever moving beyond it. Stuck in this monotonous, banal routine, Noelle’s predictable rhythm is suddenly disrupted when someone from her past, long forgotten, unexpectedly re-enters her life. Those simple days are thrown into chaos, and hazy recollections from deep in Noelle’s past are resurrected through her subconscious. In subtle prose that blurs the lines between illusion and reality, she starts to lose sleep, which triggers unexplainable events to occur in her waking life. Convinced the hallucinations are just “dreams,” Noelle tries to ignore what’s happening to her. But her attempts to block it all out don’t ease the torment, and she’s left to deal with the twisting, changing world around her.

O’Bern, Rebecca (English)

COLLECTION OF ORIGINAL POEMS

Faculty Mentor: Donaghy, Daniel

The poems I would like to share have been written during this semester and last in my poetry classes. Many of my poems touch on issues related to family, as well as religious experiences

and the affects these have had on the speaker. Most of my poems are based directly on my life experiences, but I have not been afraid to use a poetic creative license, so to speak, in order to allow the poem to grow into something more. My poetic influences over the past few years have included Wallace Stevens, Joy Katz, Paul Martin, and many others.

Titles: *Reflections of Childhood, Just keep Doing Your Thing, At My Therapist's Office, Mine Eyes Upon the Lord, Hats, Godless, Last Cigarette*

Purcell, Welles (English)

THE EMERGING FEMINIST AUTHOR: WRITING ABOUT WHAT WE KNOW

Faculty Mentor: McGowan, Marcia

This essay highlights the importance of education as it pertains to equality between men and women, looking specifically at education and the role that it plays as asserted by Mary Wollstonecraft in her work, "A Vindication of the Rights of Woman," (1792) as well as the manipulative means that Wollstonecraft contends women are forced to use in order to compensate for their supposed inferiorities. In order to support Wollstonecraft's philosophy, I juxtapose Eliza Haywood's story of *Fantomina* (1725) and Louisa May Alcott's "How I Went Out to Service" (1874) to demonstrate that without a complete education, women are 1) unschooled in the ways of the world 2) that in order to compensate for this, they revert to cunning, or manipulation and 3) that this social behaviour can be attributed to not only the gender roles and beliefs associated with a particular culture, but also that this social behavior is a result of the way that women are portrayed in the literature of that culture.

In order to accomplish the third aspect, I use various works by eighteenth and nineteenth century women writers to demonstrate that the emergence of the female voice was too tentative according to Gilbert and Gubar's theory on the "anxiety of authorship" and, as a result, how women as writers were not taken as seriously as they should have been, which in turn resulted in a reinforcement of the belief that women had no place in the literary world. Exceptions to this conformity are Lady Mary Wortley Montague with her "Reasons that Induced Dr. Swift to Write a Poem Called 'The Lady's Dressing Room'" (1734), as well as Anne Ingram's "An Epistle to Mr. Pope Occasioned by his Characters of Women" (1736). Their voices lack the anxiety of authorship when compared to other female poets, lending their work the authority and independence that was wanting in many of their contemporaries as well as successors.

Romanski, Carrie (English)

ANDIAMO: EXPERIENCING ROME

Faculty Mentor: DeRosa, Susan

I wish to present an excerpt from my travel memoir "Andiamo: Experiencing Rome" at this year's Arts and Sciences Student Research Conference and Exhibition. I just returned from a semester abroad in Rome, Italy and this travel memoir recounts my experiences. While in Italy I spent very little time in a classroom; the majority of my learning took place in a wide variety of places: climbing a mountain in Spoleto, on the steps of the Temple of Zeus in the Roman Forum,

inside the Sistine Chapel, and walking beneath an archway of the Colosseum. Upon my return from Italy I was met with the impossible task of describing the indescribable and my continuous attempts to talk about my experiences abroad have fallen flat. Writing this travel memoir has given me the words I have been searching for since I was first asked the trite question, “Carrie, how was Italy?”

My travel memoir describes my personal experiences with the people, culture, places, food, landscape, and how this place affected me. I embarked on this journey to Italy alone, and I assimilated myself according their lifestyle and culture, and eventually transformed myself in order to fit in with Italian culture. I underwent all these changes, only to return to American society in which now I feel like somewhat of a stranger. Writing my travel memoir is one of my attempts to make sense of these versions of myself and to adjust my life in order to allow both, my pre-Italy self and my post-Italy self, to co-exist. [Eventually I will stop see-sawing my way through life and rest comfortably on the fulcrum, completely balanced.]

Reading other travel memoirs, such as Elizabeth Gilbert’s *Eat, Pray, Love*, has influenced the way I hope to write about my personal experiences in Rome and hope it resonates with others. After four months in Italy my eyes were opened to a world completely different than the world I grew up in. By writing this travel memoir and sharing my experiences I hope to show how experiencing a new place, or anything new for that matter, with an open mind and open eyes can be life altering.

Walsh, Kerri (English)

EXAMINING THE RHETORIC FOR WOMEN’S ORDINATION AS PRIESTS IN THE
ROMAN CATHOLIC CHURCH

Faculty Mentor: Liu, Barbara

My thesis examines John Wijngaards' rhetoric in favor of women's ordination as priests in the Roman Catholic Church. Wijngaards is a theologian as well as a selectively orthodox proponent of women's ordination, meaning he remains part of the institutional Church while trying to implement change. Since much of the rhetorical scholarship regarding the ordination of women in the Roman Catholic Church has focused on the selectively heterodox (those who separate from the Church to initiate change), by focusing on Wijngaards' selectively orthodox rhetoric this paper presents an interesting addition to the rhetorical scholarship surrounding the issue of ordination. In this paper, I analyze Wijngaards' arguments by examining his use of the rhetorical strategies of appeals to authority and evidence, as well as appeals to time. As a result, I argue that Wijngaards uses both appeals to authority and evidence; at the same time he manages to incorporate appeals to time as an authority, resulting in a complex and interesting approach.

ENVIRONMENTAL EARTH SCIENCE

Armistead, Lauren (Environmental Earth Science)

FABRICATION OF SOLID OXIDE FUEL CELL (SOFC) ANODE BY GELCASTING

Faculty Mentor: Smirnova, Alevtina

Solid Oxide Fuel Cells have obvious advantages over other types of fuel cells because of their high efficiency, high power density, and low pollution. They can operate at high temperatures producing clean, efficient power from various fuels. In this project sponsored by NASA, the initial goal is to manufacture a SOFC anode using a sol-gel method. This method will combine Nickel Oxide powder and Ceria doped Scandia Stabilized Zirconia electrolyte powder with a polymer gel solution. This gel made from acrylamide-bis-acrylamide polymer allows binding the powder particles together and fabricating the anode support of the SOFC.

The results on the gel compositions, powder compositions, ratios between solid and polymer components, ball-milling parameters, sintering temperatures, and the integrity of the formed anode supports will be presented and compared to the state of the art literature data.

As of now, the gel solution has been developed using the optimized ratios of materials that allow for the gelling process to occur. Currently, the work is focused on optimization of a ratio of gel solution to a solid powder to produce firm and porous anode supports in the form of pellets. The next step will include the conductivity tests of these pellets to ensure that they will work within a SOFC.

Ciccalone, David, (Environmental Earth Science)

INVESTIGATION OF SINKHOLES AT THREE SITES IN EASTERN CONNECTICUT
USING GROUND PENETRATING RADAR

Faculty Mentor: Hyatt, Drew

This study examines ground penetrating radar (GPR) imaging of sinkholes at three geologically differing sites in eastern Connecticut. All sites contain sink areas underlain by insoluble bedrock (gneissic or sandstone) with till and artificial fill overburden. Discussion with home owners suggests that the sinks are the result of using improper grading techniques that have caused persistent settling that required remediation. A total of 65 GPR profiles were collected using pulseEkko Pro GPR with 100 and 200 MHz antennae. Topographic control for profiles and three dimensional grids were surveyed using a Trimble VX spatial station. All GPR profiles were processed using a dewow filter, topographically correcting profiles, and applying spreading exponential gains. Ground velocities (averaging 0.09 m/ns) were determined by hyperbola fitting. Ground truth control was limited to profiles that traverse known obstacles including bedrock exposure that become buried by fill down-line. GPR records were examined to define reflectors, void boundaries, and to identify radar facies. Sink void boundaries and bedrock facies were more clearly identifiable at the sites underlain by gneissic bedrock than the site underlain by sandstone. The clearest indication of sink voids consisted of dish shaped reflectors with overlying complex facies that have varying amplitudes. Within sinkhole fill, GPR records display contorted to complex facies. Results from the sandstone site, despite being collected at 0.5 meter grid spacing and known locations of surface sinks, were the most difficult to interpret. Profiles from the sandstone site displayed 3.5 meters of penetration of contorted fill with varying amplitude and intensity with no clear reflector for the boundary of the sinks. Ambiguous facies at

the sandstone site likely is caused by a high water table and more fine grained sediments in the overburden. Ongoing efforts seek to define the volume of sinks and fill using tightly spaced grids (X lines at 0.5 meter spacing) and three dimensional computer visualizations.

DeMaio, Alicia (Environmental Earth Science)

INTEGRATING WIND POWER IN DEVELOPING COUNTRIES

Faculty Mentor: Loxsom, Fred

Implementation of renewable energy is an excellent strategy for increasing energy independence while boosting environmental protection in developing nations. Wind power generation in particular is attractive to countries that have the necessary natural resources to do so. Jamaica is an example of a less developed country with great wind power potential. We will visit Jamaica during March 2010. During our study tour of Jamaica, we will set up a 400 watt wind turbine at Lucea High School and will measure its performance. During our visit I will assess Lucea High School's total electricity use in order to design a system that can handle their total energy demand. It is our hope that we will be able to raise funds for this larger system and someday install it; thus, reducing the school's carbon emissions and fossil fuel dependence to zero. I will also calculate how much money this school will save both from the immediate effects of the 400 watt turbine and also from the larger system. My presentation will include a perspective on the outlook of Jamaicans toward renewable energy.

We will also visit the Wigton Wind Farm to further broaden our knowledge and understanding of the positive impacts of wind power in Jamaica. This wind farm is the first utility scale wind project in Jamaica. I will also report on the performance of this renewable energy system and what can be done to increase the use and benefits of renewable energy in Jamaica.

Farrell, Jessica (Environmental Earth Science)

BUILDING K-12 SUPPORTING RESOURCES FOR DIGITAL MEDIA THAT EXAMINE STANDARDS-BASED CONTENT ON WEATHERING, EROSION, TRANSPORTATION, AND DEPOSITION AT PROVIDENCE CANYON STATE PARK, SOUTHWEST GEORGIA

Faculty Mentor: Hyatt, Drew

This study develops supporting materials that enable K-12 science educators to utilize digital resources to explore the geomorphology of Georgia's Providence Canyon State Park (PCSP) that address K-12 science content standards. Landforms and associated processes at PCSP relate to Georgia's and Connecticut's middle school science standards that involve the scientific view of how the earth's surface formed. In fact, PCSP is specifically mentioned in Georgia's education framework as part of the human impact unit, and the site exemplifies many concepts in the middle school weathering and erosion units for both states' content standards.

PCSP provides spectacular examples of landforms related to weathering, erosion, transportation, and deposition. This is due to the erosion of weakly cemented Cretaceous Providence sands by concentrated runoff, piping, and undercutting that followed land clearing in the early 1800s. Eroded sediments from 50 meter high headwalls are transported down valley by slope and river

processes creating associated talus and fluvial landforms. Also, associated deposition has created thick beds of eroded sediment, making this site an ideal location for field trips. However, due to its remote location and possible safety concerns, it is not practical for many classes to visit PCSP in person.

To capitalize on the educational value of the site, researchers at Eastern Connecticut State University have constructed interactive multimedia resources that highlight the geology of the park. This includes panoramas, fish-eyes, videos, and other media that will illustrate the ways in which erosion and deposition have shaped the land. Supporting resources described in this poster provide background for teachers utilizing these digital media. This includes an illustrated glossary with links to interactive images, historical context for landscape change, landform identification activities, and video reviews. In addition, there are guides to using virtual sediment cores to understand how sediment deposits at the site reveal landform development.

Governale, Peter (Environmental Earth Science)

STRATEGIES FOR REDUCING ENERGY CONSUMPTION IN GELSI-YOUNG

Faculty Mentor: Loxsom, Fred

Combustion of natural gas for heating and the generation of electricity for lighting and air-conditioning are the major sources of the greenhouse gases emissions that define Eastern's carbon footprint. The campus has developed a climate action plan that calls for a systematic reduction in the emission of greenhouse gases through energy conservation, improved efficiency, greater recycling, and the installation of renewable energy systems. To help implement this plan, I have acquired baseline heating energy and electricity consumption data for the Gelsi-Young building. I have also carried out a detailed energy analysis for the building and have proposed practical steps to reduce energy consumption and reduce energy costs. This baseline data and energy analysis will provide guidance for the implementation of energy reduction strategies in Gelsi-Young and elsewhere on campus.

Fowler, Samantha and Connor Morrison (Environmental Earth Science)

MODIFIED CARBON AEROGELS FOR ELECTROCHEMICAL CAPACITORS

Faculty Mentor: Smirnova, Alevtina

Carbon aerogels have many applications in new technology across many different fields of study. They have been used in insulation in space suits, as chemical absorbers, and – pertaining to our research – used in the construction of supercapacitors. We have synthesized 3 types of aerogels, each with a different catalyst (acetic acid, ammonium carbonate, and sodium carbonate) and each catalyst has three different water/resorcinol ratios to determine which catalyst with which ratio is most efficient. Each synthesized catalyst ratio will have two samples, one of which will be freeze dried, while the other is dried under ambient conditions to compare the differences in gel shrinkage, porosity, and density. After drying, we will use a confocal microscope to analyze the gels and detect small differences. We will then make a supercapacitor using the electrolyte and test it to compare efficiencies of each catalyst and water ratio. With this information we can

determine which catalyst is the most efficient of the three to be used as an electrolyte in a supercapacitor and determine how the water/resorcinol ratios affect this efficiency.

Hooker, Veronica (Environmental Earth Science)

SUSTAINABLE DEVELOPMENT IN JAMAICA: TOURISM AND ENERGY

Faculty Mentor: Loxsom, Fred

Jamaica is a popular Caribbean tourist destination that is rich in renewable energy resources, but is dependent on foreign fossil fuels to supply their energy needs. The tourism sector is an economic resource for the country, but it is also connected to an increased demand on energy and offers only low paying wages to Jamaican workers. This dependence on tourism does strengthen the energy structure and not alleviate poverty. Students and faculty from Eastern have initiated a sustainable development service learning project in Lucea, Jamaica. This project includes research on development, energy and tourism in Jamaica, linked with service learning activities during the 2010 Spring Break. I am interested in how the demand for energy services affects local Jamaican communities of and what constraints or opportunities Jamaica's tourism sector places on this demand. During the Spring Break trip, I will study how sustainable ecotourism positively influences the long term development of the economy and increases access to energy for Jamaicans. The poster presentation will include an analysis of Jamaica's tourism, energy use, and sustainable alternatives. I will include a brief analysis of Eastern's sustainable development service learning project and ecotourism in Jamaica, what we learned, and what we hope will develop into a long-term relationship between Eastern Connecticut State University and Jamaica.

Lolos, Daniel (Environmental Earth Science)

DETERMINING SHEAR STRESS AND STRAIN ACROSS AN INTRA-BATHOLITHIC FAULT ZONE

Faculty Mentor: Nadin, Elizabeth

Earthquake activity affects nearly every natural system on the earth. Geologists are able to explain some of the basics of why earthquakes happen, using elastic rebound and plate tectonic theories. Elastic rebound theory tells us that the movement of tectonic plates on the upper surface of the Earth causes energy to be stored deep within rock bodies. Progressively, the stored up energy strains the rock body until it breaks. When this happens, the sudden release of energy triggers the movement of the rock body. This sudden movement that takes place is what we call an earthquake and it happens in locations that are known as fault zones.

There are many unanswered questions about what is happening inside rock bodies as they undergo stress before an earthquake occurs. A good place to search for answers is to examine what is happening to a rock body on a microscopic level. Going right to the source of earthquake activity, our study uses thin-section micrograph analysis of fault rocks taken from the Kern Canyon fault located in the southern Sierra Nevada batholith of California. As we examine the micro-deformational features associated with the stress that the parent rock underwent during fault movement, we find that the deformation processes affecting the rocks varied according to geologic conditions, such as rock type, temperature, and pressure. In this

study we evaluated stress as a function of re-crystallized grain size, which was measured directly from thin-section samples. For these measurements, we applied the linear-intercept method, counting grain boundaries across transects of the micrograph plates we imaged, deriving an arithmetic mean and applying a standard correction factor to our collected values. We calculated fault zone stress level using the newly formed grain sizes, and incorporated these values with previously estimated temperatures of deformation to calculate the strain recorded by the rocks of the fault zone. We hope our interpretations lend a greater understanding to the basic mechanics of faults and how they relate to earthquake activity.

Nicoulin, Amberlee (Environmental Earth Science)

COMPARISON OF VIBRACORE RECORDS OF MASSIVE HUMAN-INDUCED EROSION AT PROVIDENCE CANYON STATE PARK IN SOUTHWEST GEORGIA

Faculty Mentor: Hyatt, Drew and Peter Drzewiecki

This study examines 5 vibracore samples collected within valley floors from a ~550 m longitudinal transect along a human-induced erosional gully at Providence Canyon State Park in southwest Georgia. Canyons at the park reveal in excess of 50 m of Cretaceous and younger poorly consolidated sandstone that was exposed by runaway erosion that followed deforestation at the time of European settlement. Sediments eroded from the canyon headlands are transported down valley by river and slope failure processes, creating deposits that exceed 6 m in thickness at some sites. Stratigraphic interpretations of those cores are compared with previous studies of 14 cores collected from an adjacent canyon to better understand the spatial variability of sedimentary records of canyon development. Sediments indicate systematic down-valley trends related to three sedimentary units. Lowermost Unit I consists of in place Cretaceous sediments that are overlain by modern floodplain (Unit II, at open-valley locations), and medium- to coarse-grained canyon-derived sands (Unit III, at all locations). Unit I, present in cores PC09-02 and PC09-03, consists of Cretaceous clay-rich mudstone deposited in a marine sediment. At up-valley locations, Unit I consists of cross-bedded medium sandstone of the Providence Formation. Unit II, present in cores PC09-01 and PC09-04, consists of a clay-rich, floodplain deposits which are only present at down-valley locations. All coring sites are capped by river deposits (Unit III) consisting of medium- to coarse-grained sand. Similar sediments in the adjacent canyon contain more slope failure deposits.

Oster III, William (Environmental Earth Science)

GROUND PENETRATING RADAR ANALYSIS OF THE ALLUVIAL SEDIMENT FILL IN PROVIDENCE CANYON STATE PARK, SOUTHWEST GEORGIA

Faculty Mentor: Drzewiecki, Peter and Drew Hyatt

Providence Canyon State Park in southwest Georgia contains spectacular examples of human-induced erosion. The canyons cut through poorly consolidated Cretaceous sandstone (Providence Formation) and into underlying marine mudstone (Perot Member of the Providence Formation). Ground penetrating radar (GPR) data were collected to examine the record of deposition and erosion preserved in the sediment that fills the canyon bottoms. GPR data were collected both along a 650m longitudinal transect down the canyon with several cross-sections,

and as a closely spaced 3-D grid in a small area near the mouth of one of the canyons. Three GRP units, defined by reflector characteristics, were tied to sediment cores collected in the canyon. A low amplitude unit (LA) is characterized by reflectors that absorb the GPR signal and has been interpreted to represent the fine-grained, clay-rich Perot Member. A moderate amplitude semi-continuous unit (MASC) has been interpreted as modern sandy river deposits. The sand is coarse-grained, and contains abundant cut and fill features and kaolinite pebbles. The sandstone of the Providence Formation is also characterized by the MASC units where it is penetrated by the GPR near the canyon head. A high amplitude continuous GPR unit (HAC) is interpreted to be fine-grained, vertically-accreting floodplain and slope wash deposits.

The LA unit represents Cretaceous sediments beneath the canyon and is used to identify the base of the channel fill. Based on GRR data, total sediment fill thicknesses in the canyon range from 1m at the canyon head to 6m in the furthest downstream site examined. The HAC and MASC units are interpreted to represent sediment that fills the canyon floor. They show 2 distinct canyon fill phases. The lower fill (0-4m thick) contains HAC and MASC units that represent channels and associated floodplain sediments deposited before the landscape was modified by humans. The upper portion of sediment fill (1-4m thick) is interpreted as braided channel and slope failure sediments and colluvium related to rapid human-induced headward erosion of the canyons.

Stoloff, Charles (Environmental Earth Science)

ANALYSIS OF WIND AND SOLAR RESOURCES FOR NEW ENGLAND

Faculty Mentor: Loxsom, Fred

We used hourly wind and solar data to calculate the energy output of residential-scale systems throughout New England in order to determine the potential for and cost-effectiveness of renewable energy systems throughout the region. The data used is the solar and wind data from the National Renewable Energy Laboratory's (NREL) typical meteorological year data set 3(TMY3). TMY3 contains 52 New England sites with data at hourly intervals for an entire year. To increase the amount of sites used in this analysis we used data from the NREL Eastern Wind Integration Dataset. There are 113 New England sites in the Eastern Wind Dataset.

The TMY3 wind speed and the global horizontal insolation for all 52 New England sites were used as input for wind turbine and photovoltaic power system models based on the Hybrid Optimization Model for Electric Renewables (HOMER) software. The turbine model in HOMER was the Entegriety Wind Turbine 50 kW system and the PV system was a 50 kW AC system with efficiency of 80%. We used HOMER to calculate the capacity factor, which is the ratio of annual energy output to the maximum output possible for a system of that capacity.

The 52 TMY3 sites used in this study do not constitute a high-resolution grid nor do they give equal weight to all regional climates. The TMY3 sites give greater weight to population centers at the expense of more remote areas. The population centers are not well suited for wind power systems. This means for example that no data is included for the windier western side of Maine. In contrast to this data set, the 113 Eastern Wind Data set includes data for the areas of New

England with some of the highest wind power potential, which is more than average New England areas.

The main conclusions that we have drawn from this study seem to be robust: residential solar energy systems have good potential throughout New England, but land-based wind power systems have low potential in most New England urban areas and have their greatest potential in less populated mountainous areas on the western side of the region.

Ventura, Joe (Environmental Earth Science)

CONSTRUCTION OF HEATING FURNACE FOR SOLID OXIDE FUEL CELL (SOFC) APPLICATION

Faculty Mentor: Smirnova, Alevita

SOFCs are electrochemical devices that operate at temperatures reaching 800°C. The goal of this project is to make a furnace for high-temperature applications and for miniature SOFC testing. The body of the furnace is made of quartz tube that can sustain temperatures up to 1200°C. The heating element is made of a high temperature alloy wire inserted into an insulation sleeving and wrapped around the quartz tube. This alloy is known to keep the integrity at temperatures as high as 1400°C. The second quartz tube with a larger diameter than the first one serves as a protector and a holder for the heating element. The furnace is connected to a relay/temperature controller that has an ability to control the operating temperatures as well as the heating and the cooling rates of the furnace. This is important for the SOFC to sustain multiple turn-on and shut-down cycles. The furnace will be used to sinter the fuel cell related materials and to test the SOFCs in the temperature range of 500-800°C.

HISTORY / SOCIAL SCIENCE

Marchitto, Erin (History / Social Science)

MARGARET WATERS AND BABY FARMING IN VICTORIAN BRITAIN

Faculty Mentor: Higginbotham, Ann

Baby farming was a term used in Victorian Britain to describe the occupation of those who receive infants to nurse or to raise for a payment in money, either made periodically or in one sum. Resorting to a baby farmer was common among unmarried mothers during this period when illegitimacy was stigmatized and few child care options were available. As adoption was not legal, baby farming was an alternative way to give up an unwanted child. Baby farming had become a moral panic after the *British Medical Journal of 1868* commissioned an investigation on baby farmers, reporting horrible living conditions and a lack of child care. In September of 1870, Margaret Waters, a baby farmer, was put on trial for the murders of several infants under her care. Her case was covered extensively in the newspapers. The research for this paper focused on the relationship between Margaret Waters and the baby farming panic in Victorian Britain. Several research questions were explored. How did Victorians explain Margaret Waters’

actions in the press and what did these explanations reveal about the panic over baby farming? What is revealed about who was to blame for the deaths of illegitimate children? How did the Margaret Waters case help fuel the moral panic and in what ways was it a catalyst to encourage legislation? Based on the findings from the research, the deliberate criminality identified in the Margaret Waters case helped to fuel an already existing moral panic in Victorian Britain. The case became the exception that garnered all attention and set the stereo-type for the typical baby farmer. The Margaret Waters' case was so widely covered and popular with the public that it served as the catalyst for future legislation on infants' lives and baby farm regulations.

MATHEMATICS

Deptula, Margaret (Mathematics)

STRUCTURAL EQUATION MODELING AND ITS APPLICATION TO DATA ON LEARNING STYLES AND BELIEFS

Faculty Mentor: Johnson, Pete

Do students' beliefs about learning affect the way they learn? The purpose of this research is to determine if there is a relationship between students' learning styles and their epistemological beliefs, and how strong that relationship is if it exists. So many variables can be deemed causal when determining why students perform academically the way they do. Using data I collected by surveying students attending Eastern, I display the relationships among these variables using a sophisticated data model known as structural equation modeling. This model shows how learning styles and epistemological beliefs are related when it comes to students' academic achievement.

Dunn, Molly (Mathematics)

INSURANCE INDUSTRY CATASTROPHE MODELING: AN EXAMINATION OF LONG-TERM VS. NEAR-TERM HURRICANE MODELS

Faculty Mentor: Johnson, Pete

A catastrophe, within the insurance industry, is an event causing losses of insured property above a specific monetary limit and affecting a substantial number of policyholders and insurers. Each year the eastern coast of the United States is subject to the Atlantic hurricane season, lasting from June 1 through November 30. No two years show the same life or property losses due to hurricanes making landfall but despite the lack of a steady, measurable pattern in losses, scientists, meteorologists, and insurers alike know that the hurricane season will affect the coastline in some way, regardless. Insurance companies providing coverage to states along the North Atlantic Ocean and the Gulf of Mexico face the challenge of using a system of hurricane models based on historical data to make predictions about future conditions. In the past the industry based hurricane catastrophe models on long-term historical data in order to analyze the risk probability. In 2006 the three major catastrophe modeling software companies introduced near-term models, which focus on short-term assessments of the frequencies of hurricanes, essentially allowing for the prediction of frequency of hurricanes over a short time period, the

next five years. The research presented here examines the catastrophe modeling to see, mathematically, whether the near-term models are working effectively within the industry.

Falbowski, Shawn (Mathematics)

GAME THEORY: AN INTRODUCTION TO MATHEMATICAL ECONOMIC MODELING

Faculty Mentor: Johnson, Pete

Games. We've all played them, we've all enjoyed them, and we've all won and lost our fair share, but who knew that there were certain "games" that were much more than what met our common sense? Anything with players, decisions, payoffs, and information gathering first a specific type of mathematical/economic model known quite accurately as a "game." The primary purpose therein, to model the interactions of rational decision making entities, that most often want to ensure the best possible position for themselves, or more colloquially, to win. This presentation is an introduction to some of the most famous games ever made, including the favorite "Prisoner's Dilemma," among many others.

PERFORMING ARTS

Bass, Andrew (Performing Arts)

THE MUSIC OF *FINAL FANTASY* – JAPANESE COMPOSITIONS

Faculty Mentor: Hwang, Okon

Music is an art form that everyone can identify with and it can be expressed in many ways. Japanese composers Hiroko Kokubu and Nobuo Uematsu have created compositions as part of soundtracks to the series of video games known as Final Fantasy and have done such a remarkable job that these soundtracks have transcended the series and made it into the mainstream culture of Japanese music. Concerts have been held in honor of the music of Final Fantasy throughout the world including the United States and the artistry of the soundtracks has been credited to the overall success of the video games. The soundtracks themselves also sell very well independently of the video games. I will provide cultural and historical background of Hiroko Kokubu's "Eternity – Memory of Lightwaves" and Nobuo Uematsu's "Raid" and then perform these two pieces.

Bessette, Casey (Performing Arts)

WILLIMANTIC ON STAGE: A SMALL CITY'S BIG ROLE IN THE HISTORY OF AMERICAN THEATRE

Faculty Mentor: Pellegrini, David

Because of the tendency in historiography of creating totalizing narratives of history, theatre historians have rarely investigated the stage histories of smaller regions, believing they only hold minor contributions to overall trends. This dismissal of regional stage histories can ultimately hinder the objective of expanding the story of the development of a national theatre tradition. Moreover, regional documents have been deemed unreliable, often scarce and sometimes

difficult to access. Nevertheless, a recent scholarly trend emphasizing regionalism embraces the idea that the stage history of a peripheral city can be just as significant to the historical record as that of central cities, and may have the potential to augment broad historical concepts with detail and nuance. Willimantic is one small city whose historical contributions have been undervalued. Although Willimantic has a vibrant history of performance, it has not been included in the roster of serious theatre locales. Willimantic's cultural history has, perhaps, been overshadowed by its more prominent industrial history; however, this legacy, as well as its centrality as a transportation hub resulted in a remarkable amount of theatrical activity throughout the nineteenth and early twentieth centuries. This paper provides an overview of my research into the unique contribution of theatre in Willimantic to the development of regional and national theatre traditions.

Cartier, Eric (Performing Arts)

THEATRICAL PRODUCTION SOUND DESIGN – *THE DISTANCE FROM HERE*

Faculty Mentor: Rozelle, F. Chase

The use of sound effects, soundscapes, and sound underscoring can all add dramatic impact to a theatrical production. This presentation will review the process of creating a sound design for the theatrical production *The Distance From Here*. This production required original and prerecorded sound effects and music. This presentation will include a review of the software and equipment utilized as well as review of the artistic choices and compromises made as this production prepared for public performance.

Donnel, Benjamin (Performing Arts) and Elizabeth Swan (Performing Arts / English)

LONGING

Faculty Mentor: Cobb, J. J.

The actors will be presenting scenes from *Rabbit Hole* by David-Lindsay Abaire and from *The Crucible* by Arthur Miller. Elizabeth will then perform a monologue from *The Learned Ladies* by Moliere. All roles/plays were researched, analyzed and rehearsed to compete in the Irene Ryan competition at the Kennedy Center American College Theater Festival.

Kuszaj, Chelsea (Performing Arts)

PRELUDE IN C MAJOR FROM *THE WELL-TEMPERED CLAVIER*, VOL. 1

Faculty Mentor: Hwang, Okon

In my presentation I will give a synopsis of J.C. Bach's musical career and explain some of his major contributions to music. I will state the importance of "The Well-Tempered Clavier" and the history behind his preludes. Also to be discussed in my presentation are the obstacles that I faced while trying to learn this piece and how I overcame them.

Nuzzolilli, Andrew (Performing Arts)

CRITICAL ANALYSIS OF MICHAEL ELLIOT'S (1983) PRODUCTION OF *KING LEAR*
Faculty Mentor: Pellegrini, David

Shakespeare's most powerful tragic work came to life in Michael Elliot's 1983 production, featuring the great actor Laurence Olivier in the title role. In this paper, I will consider the pros and cons of this contemporary interpretation, and how it works to reflect the themes of existential questioning, aging, filial relationships, madness and sanity. I will also pay attention to the unique juxtaposition of pagan rites and Christian ritual in Elliot's production, as well as how Olivier managed to embody these themes in what many consider to be a definitive interpretation of the role.

Odell, Lindsey (Performing Arts)
PIANO PIECES BY FEMALE COMPOSERS FROM THE 19TH CENTURY
Faculty Mentor: Hwang, Okon

For my senior project I have been researching female composers throughout music history. During the 19th and previous centuries it was very rare to see a woman composer due to the negative attitudes held towards women holding careers in music at the time. In more recent years, following the feminist movement, researchers have taken more interest in female roles in music. The absence of women composers throughout history has allowed much information to be presented on male figures but not women.

For my presentation I will discuss two very important women in 19th century music. These women are Fanny Mendelssohn and Clara Schumann. My goal is to demonstrate why these women stood out and became the notable musicians that are researched today. My research includes their biographies; highlighting the struggles and successes that made them the talented women they are remembered as. Included in this presentation will be a performance of pieces from each composer. Both women defied the odds and today are respected as great musicians.

Pancier, Kerri and Deniz Ugurlu (Performing Arts)
REHEARSED SCENES
Faculty Mentor: Cobb, J. J.

The actors will be presenting prepared scenes: from 1) *Biloxi Blues* by Neil Simon; 2) *School Girl Figure* by Wendy Macleod; and 3) a monologue from *'Tis Pity She's a Whore* by John Ford. Actors researched, analyzed, and rehearsed roles for competition at the Kennedy Center American College Theatre Festival.

Paro, Jeremy L. (Performing Arts)
WRITING MUSIC IN THE DIGITAL AGE: THE MUSIC OF JEREMY PARO AND ATLANTIC SKY
Faculty Mentor: Calissi, Jeffrey

For my senior project I have been working on different techniques used in the recording studio to bring the best out of a band's sound. I have been using my own music and that of my band, Atlantic Sky, to do this. I have been using different guitars, microphones, bass guitars, and drum kits, and different techniques of micing up guitar amps and acoustic guitars to bring out the best sound for an instrument. I have been using the program Garage Band on a Macintosh computer and Yamaha usb-audio interface to capture the sounds. The goal of this project is to send the fully mixed music out to me mastered and published along with the music scores and lyrics.

For my presentation I will present the best selections from these two sets of music. The best way for me to do this is to play the acoustic versions of some of the songs as I have been playing them for the years I have been writing them. I will also give a short talk about recording techniques and the different things one has to do to be successful in producing a well-made cd.

Wadecki, Jason (Performing Arts)

SCENIC DESIGN CHALLENGE: *THE DISTANCE FROM HERE*

Faculty Mentor: Rozelle, F. Chase

Every theatrical production comes with a unique set of scenic engineering challenges. For Neil LaBute's *The Distance From Here*, I was charged with engineering a wall that was 14' long. Additionally, the wall had to "play" at different heights. At the top of the show, the wall had to be a modest 4'10" tall, after intermission, the wall grew to a height of 6'10", and towards the end of the show, the wall grew to a height of 8'10". An additional challenge was that the wall had to be able to support the full weight of an actor as he hurled himself over the wall while it was its tallest. I was able to engineer and construct a functional, durable wall that lasted night after night for the week-long run of the show and this presentation will be a discussion of solutions considered and solutions executed.

PHILOSOPHY

Williamson, John-Paul (History)

THE DEATH PENALTY: PAST AND PRESENT

Faculty Mentor: Fitz, Hope

Capital punishment has been debated as a punishment and as a deterrent for hundreds of years, with neither side making a convincing argument to sway the public. The implementation of capital punishment has been around for over 3,700 years, first recorded in Hammurabi's Code in ancient Babylon, though likely tracing its origins much further back. The strong opposition to capital punishment has only occurred in the last two centuries, starting in Europe and spreading around the world. The death penalty has been reserved for specifically heinous crimes, as decided by the population and the time period. As of 2008, fifty-nine countries still retain the death penalty, though only twenty-five carried out the implementation of the most extreme punishment in the judicial system. I have researched both sides of the argument and will explain the major points of each side in my presentation.

POLITICAL SCIENCE

Abbiati, Daniel (Political Science)

STATES COMPLIANCE WITH INTERNATIONAL LAW: WOMEN'S HUMAN RIGHTS TREATY REFORM

Faculty Mentor: de Vries, Helma

In states in which women are subject to repression, state-led or personal violence, and threats to their overall well-being, discriminated women have become heavily dependent upon their state's commitment (or lack thereof) to the United Nations (UN) Human Rights Treaties as well as other relevant international agreements with gender equality aspects. This paper targets the persistent gap between the signing and ratification of international treaties targeted at the discrimination of women and in recognizing their human rights, versus the effective integration of treaty norms in national laws, the implementation of these laws, and in adapting regional cultural practices accordingly. In order to fully investigate the impact of the UN human rights treaty system in combating gender discrimination, a case study evaluating the implementation of international agreements, including the Convention on Economic Social and Cultural Rights (CESCR) and the Convention on the Elimination of all forms of Discrimination Against Women (CEDAW), is performed to create prescriptions for reforming such treaties to improve the cohesiveness of national policies with these treaties.

Boissonneault, Nicholas (Political Science)

SEARCHING FOR THE TRUTH: THE GACACA TRIALS OF POST-CONFLICT RWANDA

Faculty Mentor: de Vries, Helma

In Rwanda, during the early 90's, we have a clear case of genocide that affected hundreds of thousands of people. People were killed, raped, and displaced due to ethnic disparities believed to be present by the enforcing group. Due to the extent of violence and displacement, thousands of suspects have been apprehended by the incumbent regime, and their prosecution was put in the hands of the people who were affected by the genocide. This paper will examine the process of gacaca and how these local trials have aided in prosecuting thousands of criminals while enabling the victims the access to information that will help bring about justice for the families involved. By developing a case study of two regions, Sovu and Kibuye, I will investigate the effectiveness of these trials, and these findings will in turn be used to suggest policy prescriptions that other nations in the international community can use to develop a better understanding of prosecuting war crimes.

Jensen, Edvin M. (Political Science)

THE UNTOUCHABLES: SPIES, LIES, AND EXTRA-LEGAL ACTIVITIES

Faculty Mentor: de Vries, Helma

Jokingly referred to as the “the second oldest profession in the world,” espionage and covert operations have always been part of a country’s national security strategy. Ever since the Second World War ended, there has been increasing pressure to establish some form of supranational legal institution or organization that would protect nations and citizens from war crimes and inhumane actions, such as torture. However due to the covert nature of the espionage business, are there actually rules that can be applied to the actions of the intelligence community? Intelligence operations almost always rely on their ability to breach the sovereignty of other states, including the rule of law in these regimes, for the sake of protecting their own country and citizens (Sæbø 2010). In this paper I will explore some of the legal issues regarding the use of intelligence agents and covert operatives in times of both war and peace.

Lappie, John (Political Science)

THE PARTISAN IMPACTS OF LEGISLATIVE REFORM

Faculty Mentor: Salka, William

In recent years, a number of states have adopted reforms aimed at improving electoral competition and controlling campaign costs. These reforms are typically passed over the objections of critics who argue that the reforms will benefit one party over the other. While a number of recent scholarly works have examined the effectiveness of these reforms, to date, no attempt has been made to examine whether or not these changes have in fact been beneficial to one party over the other. This study examines legislative elections in forty states, in three election cycles (2004-2008). The objective of the study is to explore whether increased legislative professionalism, more stringent campaign finance regulations and term limits have benefited Democratic Party candidates over their Republican opponents. The dependent variable is the percentage of seats won by the Democratic Party in each legislature, in each election. OLS regression is used to determine whether the Democratic Party has benefited in states that have adopted one or more of the three reforms mentioned above, while controlling for other influential variables.

Lawson, Chelsie J. (Political Science) and Carmen Chau (Communication)

EXPLORING THE IMPACT OF INTERNATIONAL INSTITUTIONS ON MEDIA COVERAGE OF THE SUDANESE CONFLICT

Faculty Mentor: de Vries, Helma

This paper investigates changes in media coverage throughout and after the Sudanese conflict. Some argue that high-level officials in both the United Nations and International Criminal Court as well as in powerful permanent member states in the United Nations Security Council send important indicators regarding the responses of the international community to international conflicts, and hence impact journalism regarding conflict. Media coverage of Darfur and Sudan is collected from 2003 to 2010, in news wires like Xinhua General News Service, the Agence France Presse-English, the Associated Press, and the Inter Press Service as well as in newspapers like The New York Times, The Washington Post, The Independent (London), and The Guardian (London), which provide high levels of international event coverage and are also commonly used

news sources amongst international political elites. A sample of the articles is analyzed via content analysis to examine the impact of messages sent by international institutions and powerful states in the international system on the media coverage of the Sudanese conflict.

Watson, Ian V. (Political Science)

SEEKING GLOBAL ECONOMIC JUSTICE: THE IMPLICATIONS OF THE BIOTERRORISM ACT OF 2002, AND THE EFFECTIVENESS OF THE WTO IN BRINGING ABOUT JUSTICE

Faculty Mentor: de Vries, Helma

In response to the September 11th attacks on the United States in 2001 and the subsequent biological attacks in the form of anthrax, the U.S. Congress passed the Public Health Security and Bioterrorism Preparedness and Response Act of 2002, which requires any persons or organizations that handle or ship materials that are potentially hazardous to the U.S. population to register with the Food and Drug Administration (FDA). This registration presumably allows the FDA to track the various manufacturers and distributors of these potentially harmful materials, allowing them to trace and quickly mitigate parts of the U.S. food supply containing harmful substances. Yet the costs associated with registration and requirements may in fact raise the standards of importing food to the U.S. too high, and beyond the potentially significant economic costs, the law may infringe upon the World Trade Organization's (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures of 1994, created to make sure that any domestic laws enacted by WTO partners with the intention of protecting their national food supplies are not unduly raising export costs too high. This paper intends to examine the argument against the Bioterrorism Act and the utility of using the WTO dispute resolution mechanism in dealing with a complaint brought against the U.S. by another country. A review of the history of such complaints and resolution efforts then attempts to discern the feasibility and justice of the WTO as an instrument of change for all participating states, versus the WTO's role as a tool to serve the interests of powerful states.

Watson, Ian V. (Political Science) and Andrew J. Macomber (Environmental Earth Science)

ALTER-GLOBALIZATION MOVEMENTS AFTER SEPTEMBER 11, 2001

Faculty Mentor: de Vries, Helma

Protests targeting international institutions saw an increase in frequency and momentum during the late 1990s, followed by a sharp and sudden decline in mobilization after 9/11. Currently, demonstrations have yet to reach the heights of participation that they attained over a decade ago, and this paper seeks to investigate the factors that have affected these trends. What is the relationship between global justice movements and the state of the world economy? Is there any correlation between the decline of global protest activity and the 9/11 terrorist attacks, or with the wars in Iraq and Afghanistan? This paper uses qualitative and quantitative measures to answer these questions, using content analysis of media coverage to create a detailed chronology of protests targeting international institutions, and then presenting panel data regarding annual meetings for each institution both before and after the events in question. Qualitative and

quantitative data concerning these alter-globalization movements will be analyzed to examine their evolution, and their interaction with the activism of other global protest movements.

PSYCHOLOGY

Cinami, Alyssia (Psychology)

AN APPLICATION OF THE WONG-BAKER PAIN FACES SCALE IN THE TREATMENT OF EMOTIONAL DISORDERS IN ADULTS WITH DEVELOPMENTAL DISABILITIES

Faculty Mentor: Fitzgerald, Deirdre

Empirical research has demonstrated the reliability, validity, and utility of the Wong-Baker Pain Faces Scale (WBPFS) in the assessment of pain across a variety of settings and populations. The WBPFS is a 10 point numerical rating of pain with five corresponding caricatures of physical affect that include the following anchors: 0 = no hurt, 2 = hurts a little bit, 4 = hurts little more, 6 = hurts even more, 8 = hurts a whole lot, 10 = hurts worst. The current study took the WBPFS as model and created a pictorial rating scale for use with adults with developmental disabilities who have limited expressive language repertoires in the area of emotional communication and created a scale of emotional distress. The scale was piloted with an group of adults and was found to an effective communication tool for the more verbally able members, but was not useful for more impaired individuals. A second modification to the WBPFS model was made for one individual that brought together the literature on the rating of physical pain, picture exchange communication systems, and self-modeling. Through the merging of these paths of empirical research, we developed a pictorial self-rating scale of emotional distress that utilized caricatures of the learner himself (instead of generic pictures). This revised scale was found to be effective in the assessment of the learner's state of emotional distress and was integrated into a treatment program to reduce inappropriate behaviors associated with high levels of emotional distress.

Cormier, Kaitlin (Psychology)

THE RELATIONSHIP BETWEEN GENDER, STRESS, AND ALCOHOL CONSUMPTION

Faculty Mentor: Lanagan-Leitzel, Lyndsey

The stress-response dampening (SRD) theory suggests that alcohol consumption reduces stress and the tension reduction theory proposes that people drink alcohol to feel relief from tension. These two theories suggest that people will drink alcohol to relieve stress. I examined the hypotheses that men generally drink more alcohol than women, and people who are stressed drink more alcohol than people who are not stressed. More specifically, men who are stressed drink more alcohol than women who are stressed. Participants included sixty-five Eastern Connecticut State University undergraduates who completed the Perceived Stress Scale and the Michigan Alcohol Screening Test. Participants' gender and age was also obtained. Results indicated that gender and stress were both correlated with alcohol consumption. Generally, men who were stressed drank more alcohol than women who were stressed. In particular, men who were not stressed drank more alcohol than women who were not stressed; men who were moderately stressed drank less alcohol than women who were moderately stressed; and men who were highly stressed drank slightly more than women who were highly stressed. These findings

suggest that colleges that are seeking to reduce their students' alcohol consumption should make available, and promote, stress reducing activities.

DiFiore, Andrew G. (Psychology)

DIVORCE AND PARENTAL ATTACHMENT STYLE AS FACTORS IN BORDERLINE PERSONALITY DISORDER

Faculty Mentor: Everton, Wendi

According to Hazan and Shaver, childhood attachment style is related to not only attachment style as adulthood but to possible psychiatric disorders (1987). Children of divorced parents lack interpersonal skills that allow for healthy relationships (Tucker et al., 1997). The purpose of this study is to explore the relationships between divorce, attachment style, and symptoms of borderline personality disorder (BPD) within a random sample of college students. This research seeks to determine if individuals who come from divorced parents and indicate an insecure attachment style as measured by Hazan and Shaver's attachment style instrument will show a higher score on Leichsenring's Borderline Personality Inventory (BPI). Because of the chaotic nature of interpersonal relationships in those suffering from BPD and support from previous empirical studies that indicates divorce and insecure attachment styles towards parents are potential predictors of BPD, it is suggested that there will be a significant positive relationship between divorce and BPD and insecure attachment and BPD. Identifying risk factors has clinical and social implications on studying the etiology of BPD.

Gaffey, Kerri (Psychology)

RECEIVING EYE CONTACT, COMFORT LEVELS AND SELF ESTEEM IN UNDERGRADUATE STUDENTS

Faculty Mentor: Bachiochi, Peter

Eye contact has different effects on people, some of which can be positive or negative. This study examined the relationship between self esteem and comfort level when making eye contact. It is believed that the higher a person's self esteem, the more comfortable they are with eye contact when comparing this to no eye contact. 14 undergraduate students aged 18 to 24 participated in this study. Students filled out a questionnaire measuring their self esteem and then viewed two different pictures of a male either making eye contact with them or not. Participants' comfort level was measured with a stress checklist after viewing each picture. An ANCOVA was used to test the hypothesis and it was found that self esteem did not have an effect on comfort levels when participants were engaging in eye contact. Eye contact with an actual person is needed to elicit significant changes in one's stress level.

Hanrahan, Leah (Psychology)

EVALUATION OF THE EFFECTS OF A SENSORY DIET ON CHILDREN WITH AUTISM

Faculty Mentor: Fitzgerald, Deirdre

This study examines sensory diet and its effects on elementary school-aged children with autism spectrum disorder. Sensory diet is a commonly used occupational therapy practice that involves providing various types of sensory stimulation either contingently following the observation of inappropriate behavior or as a preventative remedy. Sensory diets are said to increase the individuals' availability for learning and to reduce behaviors that interfere with learning, although these findings have not received empirical support. The current study will measure behaviors that interfere with learning in young learners with autism as well as productivity in work sessions both when a sensory stimulation program is in place and when it is not. In Experiment I, the function of aberrant behaviors will be assessed through the Motivation Assessment Scale (MAS) and the Functional Analysis Screening Tool (FAST). This research has three purposes. First, determining the function of behavior is the first step in evaluating the appropriateness of sensory stimulation as a component of a child's treatment program. Second, if automatic reinforcement (the process by which access to sensory stimuli becomes valuable to the learner) is identified, then we can begin the process of preference assessment to uncover specific sensory stimuli that would be expected to produce changes in behavior for that learner. Finally, this descriptive functional analysis data will be used to inform manipulations of the sensory stimulation in a follow-up study.

Hildebrand, Peter (Psychology)

A DECONTEXTUALIZATION PARADIGM REGARDING THE EPISODIC-SEMANTIC MEMORY DISTINCTION

Faculty Mentor: Letterman, Margaret

Episodic memory is comprised of personal recollections of the past. Semantic memory is made up of impersonal facts that anyone could know. The distinction between these two types of memory was first articulated in the field of cognitive psychology by Endel Tulving in 1972. Since that time, some cognitive psychologists have proposed that we have two separate mental systems, one to manage episodic memory and one to manage semantic memory. It is a claim that has been controversial.

I hypothesized that instead of two separate systems, all memories start off as being episodic. The more experiences are repeated, the more they lose personal context. They become "decontextualized," and by definition lose their episodic status.

To test this, I asked students at Eastern Connecticut State University to recall the context in which they learned facts that they had only heard once or twice, and their ability to recall the context in which they learned facts that they had heard many times. By comparing these two abilities, I was able to examine whether or not memories lose context the more they're tested over time.

Ingoglia, Melissa (Psychology)

ANDROGYNY AND CONFORMITY IN FEMALE COLLEGE STUDENTS

Faculty Mentor: Diller, James

This study is being conducted to examine the differences in conformity, dominance, self-esteem, and views of sex-appropriate behavior in androgynous, masculine, and stereotypical female college students. The Bem Sex Role Inventory, California Psychological Inventory Dominance Scale, Texas Social Behavior Inventory, Attitude Towards Women Scale, and the Asch paradigm will be utilized. Masculine females should conform less than androgynous females, who in turn should conform less than stereotypical females, due to their more masculine characteristics of dominance, self-esteem, and more liberated views of sex-appropriate behavior. Preliminary results have revealed a statistically significant positive correlation between levels of dominance and self-esteem scores. Additionally, there has been no effect of sex type on conformity, as no conformity has been observed. Limitations and weaknesses of this study, along with implications for further research will also be discussed.

Kaczynski, Michelle (Psychology)

COLLEGE STUDENT EMPLOYMENT AND ITS EFFECTS ON ACADEMIC
ACHIEVEMENT AND WELL-BEING

Faculty Mentor: Bachiochi, Peter

For decades, studies on extra-curricular activities and their association with grade point average have been completed. There is a question as to whether or not extra-curricular activities impact academic achievement in a positive or negative manner. One area of extra-curricular activities that has been studied is employment. Forty-four students at Eastern Connecticut State University filled out questionnaires in regards to their involvement in the labor force, their expected grade point average for the semester, and their overall satisfaction with life. Research on college employment has focused primarily on academic performance influences but little can be found on possible emotional effects. Independent sample t-tests were run to determine if employment affects academic achievement and overall life satisfaction. Results suggest employment has no effect on college student's grade point average or well-being. These results support the notion that employment status is neither helpful nor harmful for a college student.

Meoli, Michelle (Psychology)

THE BIG FIVE PERSONALITY TRAITS IN RELATION TO SEXUAL BEHAVIOR IN
COLLEGE STUDENTS

Faculty Mentor: Everton, Wendi

In the United States a growing outbreak of teen pregnancy and sexually transmitted diseases is a problem that needs to be addressed. The participants of this study are 35 Eastern Connecticut State University heterosexual students between the ages of 18-53 years old that are in a PSY 100 Introductory class and individuals from upper level psychology classes. The average age of participants in this study was 23.3 years old. The majority of the participants, 94%, identified themselves as sexually active, or has engaged in sexual intercourse before. The variables in this study include the big five personality factors, gender and sexual behavior. The study is going to be used to find a correlation between the personality factors and risk of sexual behaviors. There were no significant findings in any of the big five personality traits in relation to the reported

risky sexual behaviors. An independent t-test determined that there was no difference in the risky sexual behaviors that men and women engage in.

Patros, Conner (Psychology)

THE RELATION BETWEEN IMPULSIVE CHOICE AND CARDIOVASCULAR REACTIVITY

Faculty Mentor: Diller, James

Impulsive choice has been defined as the selection of a small, immediate reinforcer, to the exclusion of a larger, delayed reinforcer. Various factors, including drugs of abuse, have been shown to modify levels of impulsive choice. Because drugs have physiological effects and can alter impulsivity, there may be a cardiovascular correlate of impulsive choice. Additionally, the spontaneously hypertensive rat, an animal model of attention-deficit hyperactivity disorder, was originally bred for its cardiovascular profile. The present study explores the relation between impulsivity (measured using a computerized delay discounting task) and cardiovascular reactivity (change in heart rate during a serial subtraction task) in a college-based sample. Data were collected from 39 participants (24 female). A linear regression suggests that there is a predictive relation between cardiovascular reactivity and impulsivity, $B = -.40$, $t(38) = -2.67$, $p < .05$, $R^2 = .16$. That is, individuals who exhibited higher degrees of impulsive choice also exhibited greater cardiovascular changes in the serial subtraction task. Evaluating the influence of cardiovascular factors on impulsivity may provide additional information about its genesis, possibly leading to improved screening methods for the behavioral and health-related problems associated with this type of maladaptive choice.

Rumsey, Erin (Psychology)

THE EFFECTS OF LOCUS OF CONTROL ON UNDERGRADUATE STUDENTS' CONFIDENCE IN PRESIDENT OBAMA'S PLANS BASED UPON RECORDED SPEECHES DELIVERED BY BARACK OBAMA AND RUSH LIMBAUGH

Faculty Mentor: Bachiochi, Peter

The present study examines how secure undergraduate students feel in the president's plans for the economy and in their lives as a result of the current national recession. Twenty-five undergraduate students filled out questionnaires measuring demographic characteristics, feelings on the economy, and locus of control. After being assigned to one of three groups (liberal, conservative, or control) participants watched politically-charged recordings (liberal watched President Obama, conservative watched Rush Limbaugh) and filled out a second questionnaire aimed at determining their change in confidence in Obama. The data were analyzed using a repeated-measures ANCOVA analyzing participant's score on the locus of control scale and changes in confidence between the two tests. Results of the study were non-significant, showing that one speech does not appear to change perceptions, despite how convincing the source may be. Results of this study speak to the importance of informing students of the effects the recession may have on their future fulfillment as they graduate and pursue employment.

Sirois, Carissa (Psychology)

PERFORMANCE DIFFERENCES ON THE STROOP COLOR-WORD TASK IN ADHD AND NON-ADHD INDIVIDUALS

Faculty Mentor: Letterman, Margaret

Attention deficit hyperactivity disorder (ADHD) is a commonly diagnosed childhood disorder, affecting five percent of children in the United States. Some individuals continue to suffer from ADHD during adulthood (Savitz, & Jansen, 2003). Individuals with ADHD are thought to have impaired executive functions, which manifest as a reduced ability to inhibit distracting information, as well as control their responses to it (Carter, et al., 1995). The Stroop Color-Word test measures ability to ignore irrelevant information. This study will test individuals using the Stroop test and an animal Stroop test to see if there are performance differences between individuals with ADHD and controls. It is expected that those with ADHD will perform more poorly and commit more errors than controls.

Tuggle, Ashley (Psychology)

THE PUSH FOR PERFECTIONISM: PERFECTIONISM OF COLLEGIATE ATHLETES IN RELATION TO GENDER

Faculty Mentor: Lanagan-Leitzel, Lyndsey

Perfectionism occurs when a person sets goals that are unattainable for themselves or for others. This study examined the difference in perfectionism between student athletes and non-student athletes, as well as the difference in perfectionism between males and females. The current study consisted of 49 student participants from Eastern Connecticut State University, using the Multidimensional Perfectionism Scale (MPS) which measures three dimensions: self-oriented, other-oriented, and socially prescribed perfectionism. The data was analyzed using an F-test. The results found that athletic participation is significantly correlated to two dimensions of perfectionism. However, gender did not show a significant effect on any dimension perfectionism. Implications of the current study may be useful in limiting the harmful traits associated with perfectionism.

SOCIOLOGY

Lonsdale, Amanda (Sociology)

EFFECTS OF THE MINIMUM LEGAL DRINKING AGE ON ALCOHOL RELATED CRASHES AND INTOXICATED DRIVERS IN THE STATE OF CONNECTICUT

Faculty Mentor: Dugan, Kimberly

In 2008, 11,773 individuals lost their lives to the act of drunk driving, with eighty-six deaths in the state of Connecticut alone. This study assesses whether or not the minimum legal drinking age (MLDA) affects the number of under twenty-one year old drivers involved in alcohol related crashes in the state of Connecticut each year. Alcohol related crash statistics taken from the

Fatality Analysis Reporting System (FARS) were collected and analyzed from the years 1975 – 2008 and displayed through charts and graphs in terms of different statistical analysis. Evidence was found to support the hypothesis that raising the minimum legal drinking age will lower the number of intoxicated drivers involved in alcohol related crashes in the state of Connecticut. However, further research is needed to determine which additional outside factors that, along with the MLDA, caused the statistical decrease.

Manierre, Matthew (Sociology)

ENVIRONMENTAL FACTORS TO STUDENT SUCCESS

Faculty Mentor: Parsons, Nicholas

Residence Halls are the location in which students spend the vast majority of their time at Eastern. We are constantly exposed to diversions such as television, our friends, and the Internet. While prior research has given us understanding that too much of most any activity can lead to a decline in study time and academic performance, we have little understanding of how different diversions pile on top of one another to create an equally detrimental effect. To investigate the various factors that influence academic performance, invitations to complete a Web survey were sent to 458 ECSU freshmen. Data were collected on time spent in various activities, e.g., visiting social networking websites, drinking alcohol, and gambling. After data analysis is fully conducted, we anticipate that this study will at least partly reveal the array of environmental influences Eastern students face.

Manierre, Matthew (Sociology)

AN EXPERIMENTAL METHOD TO IMPROVE RESPONSE RATES FOR ECSU STUDENT SURVEYS

Faculty Mentor: Parsons, Nicholas

One of the primary difficulties in conducting a survey is getting people to respond. A great deal of research has been conducted on the various factors that influence response rates to surveys. One technique researchers sometimes use is to include a token financial incentive with an invitation to participate. To our knowledge, this approach has not been used in surveys implemented to Eastern students. In January, 2010, a random sample of 458 ECSU freshmen were contacted and asked to participate in a Web survey. To test the effectiveness of a token financial incentive on response, 158 of the invitees received a \$2 bill along with their survey invitation, while 300 received no token incentive. As hypothesized, the token incentive group yielded a significantly higher response rate than the group receiving no incentive. Specifically, the response rate for the incentive group was 12 percentage points higher than the rate for the no-incentive group. These findings are useful for researchers trying to encourage Eastern students to participate in campus-wide surveys.

VISUAL ARTS

Ballas, Brian (Visual Arts)

FISHMEN IN SUITS

Oil on Canvas, 30" x 30"

Faculty Mentor: Liu, Qimin

Blakeslee, Terra A. (Visual Arts)

BOOK ILLUSTRATION

Mixed Media, Digital, 13" x 10"

Faculty Mentor: Lennox, Terry

Church, Leanne (Visual Arts)

COW

Sheet metal, 5' x 2' x 3'

Faculty Mentor: Widdiss, Claudia

Ciacchi, Christina (Visual Arts)

THROUGH THE WINDOW: NEW YORK CITY

watercolor 10" x 15"

Faculty Mentor: Blocton, Lula Mae

As part of an independent study with Professor Andy Jones, I set out to do a series of cityscape paintings in watercolors. *Through the Window: New York City* was my first endeavor at this task. Based off of a photograph that I took through the windows of the Museum of Modern Art, this painting is a study of a section of a row of apartment buildings. I have always been interested in portraying cityscapes because even if people are not present in the work there is always a hint of their presence in the buildings or structures. I like to find the human element in cities and I hope that this piece is successful in doing that.

Ciacchi, Christina (Visual Arts)

BOSTON: ILLUMINATED

watercolor and pen and ink 22" x 30"

Faculty Mentor: Jones, Andy

Boston: Illuminated is a large scale watercolor and pen and ink drawing that I made as part of an independent study with Professor Andy Jones. I wanted to portray a city at night and Boston provided to be a great location to base my work on. While visiting the city, I took various photographs at night showing the city lights against the buildings. This particular location proved to be the most interesting with a library, church, and reflecting pool illuminated by lights. I chose to use pen and ink on top of the watercolor to refine the structure of the buildings and give the whole painting a sense of unity. I found this work to be both challenging and interesting.

Ciacci, Christina (Visual Arts)
SELF-PORTRAIT IN BROWN
walnut ink 29" x 20"
Faculty Mentor: Liu, Qimin

As part of Professor Qimin Liu's portraiture class, we had to complete a self-portrait in any medium by the end of the semester. I knew immediately that I wanted to do an ink wash on a large scale. I chose to use walnut ink given to me by Professor Andy Jones, giving it a warm brown tone. I used many layers to create the various tones seen in the painting. This work was very much inspired by the work done by Professor Liu, who has done similar ink washes of his students. I loved how his work was so straight forward and direct; this piece is my own version of that.

Ciacci, Christina (Visual Arts)
CAKES
colored pencil on paper 22" x 30"
Faculty Mentor: Blocton, Lula Mae

Cakes is a colored pencil drawing done for my Advanced Drawing class with Professor Blocton. This drawing is based off of a photograph I had taken in the grocery store. In my first attempt at using colored pencils, I decided to use cakes as my subject matter. I have painted cupcakes before and found that the subject matter of desert is fun as well as challenging to portray. They also can look like advertisements for these foods which I find to be interesting. Layers and layers of colored pencil gave me the result you see. I found this drawing to be both time consuming and enjoyable.

Doyle, Mark (Visual Arts)
WARD AVE.
Pen and Ink 19.5" x 20"
Faculty Mentor: Blocton, Lula Mae

Doyle, Mark (Visual Arts)
UNION ST.
Pen and ink 19.5" x 25"
Faculty Mentor: Blocton, Lula Mae

Engler, Ethel (Visual Arts)
PIPE DREAM
Oil on wood panel 16" x 12"
Faculty Mentor: Liu, Qimin

Arranging ordinary, mundane, and downright ugly formerly utilitarian objects into a pleasing composition can be both a challenging and rewarding experience. This work is an attempt to accomplish these goals.

Engler, Ethel (Visual Arts)
NATCHAUG IN WINTER
2 Oil Paintings Oil on Canvas 24" x 36"
Faculty Mentor: Blocton, Lula Mae

Gresh, Emily (Visual Arts)
BOOK ILLUSTRATION
Mixed Media, Digital. 13" x 10"
Faculty Mentor: Lennox, Terry

Hansen, Paula (Visual Arts)
BOOK ILLUSTRATION
Mixed Media, Digital. 13" x 10"
Faculty Mentor: Lennox, Terry

Kessler, Laura (Visual Arts)
TRAVELING TRUNKS
Encaustic Mixed-Media -2 sculptural pieces in trunks: the two trunks are 19-25"w x 24.5"h x 11"d (when open), and 16-22"w x 24.5"h x 11"d (when open)
Faculty Mentor: Liu, Qimin

What you see does not exist
You can never be real if you exist
your memories are real only to you
if you don't exist neither do your memories
if your memories don't exist you are free to be real
and not chained down by pain that is optional
if you don't exist and nothing exists everything is real
there is one and it is all
there is you but you are everything
you create everything
everything creates you
but nothing happens on a conscious level
unless you know how many hands you have
with which to make
the thing that is you that is outside
breathe
in a new way

you do not exist
remember
you are an action that is constantly happening
to keep every step in the dance material
is to never move with grace
to be in reality is not to be
very much

Knust, Jonathan (Visual Arts)
BLOCK
Oil Painting 18" x 24"
Faculty Mentor: Blocton, Lula Mae

Lupinacci, Jessica (Visual Arts)
BOOK ILLUSTRATION
Mixed Media, Digital. 13" x 10"
Faculty Mentor: Lennox, Terry

Marsie, Rebecca (Visual Arts)
CALLIGRAPHY AFFECTED BY BUDDHIST CULTURE
Faculty Mentor: Gelburd, Gail

Calligraphy is a traditional art form that is considered as old as China itself. It is an ancient writing system that allows people to express their artistic and emotional feelings. The art of calligraphy is more than just a writing system; it is about mastering the soul through gentle brush strokes which represent the very spirit of Buddhism. The first step to understanding the art of calligraphy then is to understand the Buddhist culture. The presentation will include cultural references to the harmony of proportions, and the need for simplicity. Some of the major points in my discussion will be about universal harmony or balance of opposites and its importance in the artwork and in Buddhist religion. Calligraphic characters combine to introduce visual forces and movements. This visual presentation will explain the connection between Buddhist culture and calligraphy.

Parzych, Mary (Visual Arts)
MUSIC IN THE CITY
Oil Painting 16" X 20"
Faculty Mentor: Blocton, Lula Mae

This still life oil painting is a study of the technique call trump-oil. This method is utilized for painting extreme realism.

Parzych, Mary (Visual Arts)

ARTIST'S VIEW 1, ARTIST'S VIEW 2, ARTIST'S VIEW 3, ARTIST'S VIEW 4

Set of four ink abstracts, each 20" X 24"

Faculty Mentor: Liu, Qimin

These four ink abstracts were part of a study on utilizing ink washes in painting.

Parzych, Mary (Visual Arts)

JAJU WITH ANDY AND BENNY

Oil painting 24" x 36"

Faculty Mentor: Liu, Qimin

Radkovitch, Stacey (Visual Arts)

AUSTRALIAN CROC

Soft pastel on paper, 18"x 24"

Faculty Mentor: Blocton, Lula Mae

Radkovitch, Stacey (Visual Arts)

FISH

Soft pastel on paper, 18"x24"

Faculty Mentor: Blocton, Lula Mae

Rivera, Juan (Visual Arts)

BOOK ILLUSTRATION

Mixed media, digital 10" x 13"

Faculty Mentor: Lennox, Terry

Slowik, Clint (Visual Arts)

ABSTRACT EXERCISE

Oil on Canvas, 18" x 24" inches

Faculty Mentor: Blocton, Lula Mae

This oil on canvas was done as part of an exploration and practice in abstraction, color and texture. Magazine clippings were selected and arranged in a small collage. This was then drawn to canvas and painted.

Slowik, Clint (Visual Arts)

DRAGON TIGER PARTY

Ink on Clayboard, 18" x 24"

Faculty Mentor: Jones, Andy

Heavily influenced by Japanese and Chinese themes and methods, this piece is another take on a classic match up between two powerful forces found throughout many Asian cultures. Made through the addition of ink with both flowing strokes and precise lines, much like classic ink paintings of China and Japan, this piece had many layers applied which were allowed to dry and then scratched down through in order for the pure white to be relieved for detailing and affect.

Slowik, Clint (Visual Arts)

FRUIT AND WINE

Colored Pencil and Oil Pastel, 18" x 24"

Faculty Mentor: Blocton, Lula Mae

A staple among artists throughout the ages, both as subject matter and supplement to their diet. Fruit and Wine was drawn from a still life on a kitchen counter top. It was sketched out on colored paper and then blocked in with rich oil colors and finally detailed with colored pencils.

Slowik, Clint (Visual Arts)

GRANDPA SLOWIK

Charcoal, 18" x 24"

Faculty Mentor: Blocton, Lula Mae

An old but beautiful photograph and the reminiscing of my father are the only ways I've had the chance to learn of this great and seemingly regal man. This is my own personal way to spend time and get to better know him. Charcoals on colored paper, drawn from vintage photograph, I like to hope that I would have made him proud.

Slowik, Clint (Visual Arts)

KABUTO NO KUROI

Metal Sculpture, aprx. 2' x 1.5' x 1.5'

Faculty Mentor: Widdiss, Claudia

In many cultures throughout history armor has not only been a means of defense and functional wear for the battlefield, but a status symbol, heirloom and ornately decorated garment often made to command respect on and off the battlefield. Kabuto no Kuroi, literally meaning "Black Helmet" is based on an older era of Japanese samurai helmet which tended to trade just a little bit more functionality for beautiful design. This piece was made through hand cutting and shaping steel through hammering, bending and refining each piece to be able to fit the human head. It was riveted together by hammering and then had bluing applied to the steel to give it its black and worn look. Finally the piece was adorn with found brass pieces and ropes to give it an authentic and decorative surface.

Slowik, Clint (Visual Arts)

RAIJIN

Faculty Mentor: Widdiss, Claudia

Having earned a permanent spot in Japan's culture, both popular and classical, Raijin is the representative deity of thunder often accompanied by the deity of wind Fujin. Found throughout Japan outside or within shrines and temples as well as painted on tapestries, Raijin is depicted as a muscular beastly figure, knurled and fierce in appearance carrying with him a set of drums with which the rolling thunder is made. In legend, Raijin, along with Fujin, were originally demons in opposition to Buddha. After a fierce battle between the two demons and Buddha's heavenly army they were finally subdued and served under Buddha since. While undertaking this project I have wanted to maintain a sense of the deity, taking care to keep the essence of what Raijin represents despite the abstract form. The process has undergone many alterations both in the aesthetics and methods used towards the completion of the piece. As the piece has grown so has the artist, the work revealing itself and speaking to it's final look. The materials used include mostly wood as well as metal for structural stability and visual accents. Working on a piece of this scale has been one of the most rewarding and educational experiences in my visual arts career. I grow more excited with anticipation as it nears its final stages of creation, it's final appearance still growing and changing as it reaches it's completion.

Slowik, Clint (Visual Arts)

TEMPLE

Soft Pastels, 18" x 24"

Faculty Mentor: Blocton, Lula Mae

Beautiful and vivid, the temples of Japan are numerous in number but always grace the landscape with their grand structure and grace. This piece is drawn from photographs taken from the time I spent living in Japan. Drawn on colored paper with soft pastel.

Wiltse, Rebecca (Visual Arts)

ITALIAN LANDSCAPE

Oil Painting 30" x 24"

Faculty Mentor: Blocton, Lula Mae

Zambarano, Aaron (Visual Arts)

SWORD

Color Pencils on paper 24" x 27"

Faculty Mentor: Blocton, Lula Mae
