Nader Amer  
Mentor: Nalanda Roy, CJSPS  

*Examining Darfur in Relation to Globalization*  
Darfur, a region located in the southwest corridor of Sudan, recognized as where the first genocide of the 21st century has, and is taking place. The Darfur conflict is examined in relation to globalization, which encompasses a wide variety of interconnected subjects. The main subjects to be focused on are: (A) how intrastate conflicts/politics affect other countries indirectly involved throughout the international system, (B) humans worldwide are altering the environment through pollution/deforestation which can lead to conflict, (C) human actions, conflicts, and ideologies are outputs of the social structures, which they exist in and how that social structure functions and reacts to the inputs, (D) international global organizations (IGOs) are paramount in that they mitigate anarchy helping to facilitate peace in accordance with international economic prosperity through interdependence. Lastly as IGOs are important, a general policy is recommended with relation to the failure of the League of Nations—pinpointing The Pact of Paris as a main fault. This has lead to the conclusion to threat Sudan’s economy and state relations by labeling it as a “bad actor” ensuring states cut their relations with Sudan until the conflict ends. On top of this we may also offer a “carrot” to help develop the country’s economy further through the World Bank and IMF. In ensuring the stipulations of receiving this aid and terms are adhered to, the Heavily Indebted Poor Countries Initiative would do so by providing economic plans for sustainable growth and development, to provide debt relief.

Tannie Arnsdorff  
Mentor: Jason Tatlock, History  

*Herodotus: Historian and Popular Culture Guru*  
Herodotus’ *Histories* are debated not only for their accuracy, but also in the value of the numerous digressions or even ramblings in his writing. What is certain is that the cultural aspects Herodotus witnessed in his travels influence his views on the “nature of human societies” and his “preferred explanations involve factors which are dynamic and changeable.” Cicero described his interest in the minutia of the many cultures as
“fabulae” and many suggest the Histories contain outright fabrications. By viewing the Histories as a lens into the contemporary context and their implications for the Greek worldview of the time, a vivid picture of popular culture in the late fifth-century BC emerges. In this way, Herodotus’ examples of human sacrifice in the ancient world are revealing to the evolving reception and regard for human sacrifice across cultures, portrayed mostly through gossip and foreign descriptions.

Katherine Babineau and Chandler Goldman
Mentors: Suzy Carpenter, Chemistry and Physics
Aaron Schrey, Biology
Jonathon Roberts, Psychology.

The Miracle Tree
Haiti is a country plagued with many issues, several of which stem from deforestation. Deforestation has been the catalyst for soil erosion, which has in turn depleted the vast majority of the nutrients in the soil making it even more difficult for plants to grow. In recent studies, The Moringa Tree known informally as “the miracle tree” has shown an incredible ability to grow in even the most nutrient deficient soil. The Moringa tree, specifically the species Moringa Oleifera not only grows well in nutrient deprived soil but also produces nutrient rich leaves. These can be used to prevent malnutrition in children with less than one tablespoon of dried leaves per day. The Moringa tree can help combat soil erosion, prevent malnutrition, and even purify water. However, extensive testing will be needed to show that the species will not become invasive. Can the Moringa tree help Haiti without becoming a detriment to the natural environment?

Margie Bach
Mentor: John Jensen, AMT.

Mythology and the Visual Arts: A Collaboration BFA Project
What I would like to discuss is the inspiration, process and work behind my Bachelors of Fines Arts Project. I am a ceramic sculptor and my work is inspired by natural motives, mythology and the human figure. I would present a talk and PowerPoint presentation as well as exhibit some of the sculptures included in my senior exhibit. My project includes a life size figure sculpture and (4) ¾ scale portrait busts. I will focus mostly on the large piece entitled “Swallowing the Ocean in a Single Gulp: the trappings of time and technology.” I will discuss the sculpting process, the difficulties involved in sculpting and firing a large piece, present images documenting that process, discuss the inspiration behind the project and detail my finishing technique. In my work I utilize acrylic paint to achieve trompe l’oiie, or fool the eye, effects such as bronze and marble instead of the traditional glaze method of finishing ceramic. I have included some photos of the work discussed for review.

Ryan Barnes
Mentor: Michael Price, History

Fictional Utopia or Undiscovered Paradise: Atlantis
I would like to begin to start off by saying how much courage this paper took to write. By presenting this paper I understand that I am putting my reputation on the line. I also realize that I am placing my credibility in a very vulnerable position. Despite the possible ramifications I will sail my ship of enlightenment straight into the deepest depths of darkness. The discovery of
Atlantis will shake the very foundations of history, geography, and the radioactive dating process. Using historical text, geographical evidence, and through experts on the subject, I will prove where exactly Atlantis is, what happened to its people and ultimately tell their story. Using empirical evidence and pseudo-scientific theories, a picture will be created depicting the tragic downfall of one of Earth's most advanced civilizations. History has repeatedly shown us that when a new idea is presented that deviates from the pre-existing notion then it becomes heavily criticized. Personal attacks are made on the presenter of a new theory trying to portray him or her as insane and a scientific deviant. I will show numerous accounts of where this happened to many of the brightest men and women that this Earth has ever seen. Then move on by debunking old theories of where Atlantis was thought to be. These places include: Ireland, Iceland, or Pompeii. From there I will transition into where I believe it lies today; Antarctica.

Justin Berardi
Mentor: Allison Belzer, History

*The Epochs of Humanity: Reflections of the Enlightenment in Modern Popular Culture*

Hundreds of years have passed since the Enlightenment. But the values and ideals advocated by the great philosophers of the Age of Reason, such as Voltaire, Condorcet, Kant and Montesquieu endure. Reason and science became the lenses through which these revolutionary intellectuals began to examine society, replacing previously accepted ideologies that existed in religious dogmas, despotism, and superstition. Today, the importance of Enlightenment values is represented in modern popular culture. The themes and characters in Star Trek: The Next Generation provide a clear example of this connection. Throughout the seven seasons in which STNG transported its viewers to far away planets, the values of the Age of Reason served as a moral compass necessary for humanity to navigate the stars.

Justin Berardi
Mentor: Jason Tatlock, History

*Troy: Modern Implications of an Ancient City*

The Homeric epics The Iliad and The Odyssey introduced western culture to the exciting mystery of an ancient city steeped in adventure, myth, and legend. Following its discovery in modern day Turkey by the German archaeologist Heinrich Schliemann, the legendary city of Troy was sure to become an integral aspect of modern Turkish nationalism and a cultural jewel of the East...but it didn’t. Why has one of the most famous cities of ancient times not been embraced by Turkish culture, and where are the historical references to the Trojans from outside of ancient Greece? The search for these answers reveals a modern dichotomy between east and west that is tangled in politics, religion, nationalism, and culture.

**Kirsten Boessneck
Mentor: Bryan Riemann, Health Sciences

*Biomechanical Analysis of the Kettlebell Swing in Women*

Previous research considering kettlebell swings in men demonstrated significant impulse, power, and kettlebell velocity changes with kettlebell masses varying by 8-kg. Women also commonly perform kettlebell swings, however research is needed with smaller load progressions. PURPOSE: To determine the effect of kettlebell mass on peak kettlebell velocity and total body center of mass impulse and peak power in women while performing overhead kettlebell swings. METHODS: 20 women experienced in kettlebell swings performed 15
overhead swings with three different masses (8-kg, 12-kg, 16-kg) in a randomized order. Three-dimensional kinematics were used to compute peak kettlebell velocity while impulse and peak power were computed from the ground reaction forces. RESULTS: Impulse and power increased with each load increase. The 12-kg impulse was significantly greater than 8-kg and 16-kg was significantly greater than 12-kg, while peak power at 16-kg was significantly greater than 8-kg and 12-kg. Concentric kettlebell velocity significantly decreased with each progressive load increase: 12-kg<8-kg and 16-kg<12-kg. Eccentrically peak velocity significantly decreased between 16-kg and 8-kg, it also significantly decreased between 12-kg and 8-kg. CONCLUSIONS: 4-kg increments in kettlebell mass were sufficient stimulus to largely promote changes in all measures considered. Across the three loads, both impulse and peak power were maximized by the 16-kg despite a significant decrease in velocity. This suggests women with similar kettlebell experience should utilize at least 16-kg to stimulate strength and power adaptations. Future studies should consider larger mass kettlebells for women to determine at what mass impulse and power are maximized.

**Jessica Boland**
Mentor: Regina Rahimi, Early Childhood Education

_Harry Potter Narrative Writing Unit_

This is a 20-day unit focusing on narrative reading and writing in the Fiction genre. The main text will be J. K. Rowling's _Harry Potter and the Sorcerer's Stone_. The activities in this unit are chosen to enhance student understanding of fiction narrative writing by strengthening their reading comprehension, vocabulary, and writing skills. These lesson plans were created to incorporate accommodations for students with special needs within an inclusion classroom. Activities incorporate team (group) work and individual work, teaching students to work together for the benefit of everyone. The reading, writing, and organizational skills that will be taught can be used by students in all content area classrooms.

Caroline Braun
Mentor: Laura Barrett, LLP

_“Something Troubling and Strange:” Repression and the Uncanny in Kazuo Ishiguro’s Never Let Me Go_

In his novel _Never Let Me Go_, Kazuo Ishiguro creates a reading experience that has multiple opportunities to unsettle the reader. From the story’s onset, the narrator, Kathy, speaks to readers as if we are inhabitants of her world and a member of the same class, which, in this society, is that of a clone. Because of this narrative strategy, the audience finds itself a part of a culture that the technology of cloning has shaped, and the moral dilemma this innovation creates profoundly influences not only Kathy and the people she encounters, but the readers as well. In a novel about cloning, the potential for uncanny elements to materialize abounds. In fact, the concepts of doubling and intellectual uncertainty are inherent within any story dealing with the uncanny. However, what differentiates a novel like _Never Let Me Go_ from other novels about cloning is the narrator that Ishiguro creates to interpret the world of the novel. As a clone coming of age at a school in which neither the human instructors nor the cloned children adequately examine the society they share, Kathy becomes Ishiguro’s means of exploring the ways that both clones and their creators cope with life in a society that is dependent upon implicit inequality. In the end, Ishiguro forces his readers to confront the ways in which Kathy’s world resembles our
own, and, once this realization comes to light, it becomes both challenging, if not impossible, for us to continue to repress it.

**Amber Brown
Mentor: Anne Katz, Early Childhood Education.**

*Teens for Literacy Project: Middle School Students as Literacy Leaders*

The purpose of the Teens for Literacy initiative at East Broad Street School is to encourage middle school students to enhance their literacy skills and bring awareness of the importance and joy of reading to their peers. Additionally, the program encourages students to consider and ultimately pursue higher education opportunities. The Teens for Literacy leadership team participates in weekly meetings with Armstrong Atlantic State University faculty member, Dr. Anne Katz, and graduate assistant, Amber M. Brown, in order to achieve their school-wide literacy improvement goals. Projects include writing and distributing a monthly newspaper, the “East Broad Times,” introducing a visiting Savannah Children’s Book Festival author to the school community, and initiating a pen-pal exchange in a rural Haitian school. The newspaper provides students with a forum to write about issues that are significant to them and allows them to connect to peer readers. The students’ enthusiasm has resulted in upcoming projects, such as Poem in Your Pocket Day, which is slated for April. Through Shadowing Day at Armstrong, students are given the opportunity to experience campus life. The teens participate in an undergraduate course, attend a campus tour, and learn about the admissions process. This is not only a significant opportunity for the teens, but also serves as a learning experience for the undergraduate students, many of whom aspire to become future educators. The Teens for Literacy program has experienced great success at East Broad over the past two years and continues to encourage and engage its student leaders.

Jessica Brown
Mentor: Nalanda Roy, CJSPS

*Chinese Investment into African Infrastructure: Leech or Lender?*

During the last few decades a number of emerging economies have somewhat replaced Official Development Assistance (ODA) within Africa but predominantly Sub Saharan Africa. These economies include but are not limited to India, the Gulf States and most relevant to this Essay, China. Their combined economic “contributions” are somewhat equivalent to the financing of the ODA. China as well as the other aforementioned nations has long since had economic interest in Africa but in recent times there has been an obvious increase in trade and finance. Various “global trends” have led to an increased level of investment, on the threshold of surpassing America. This is attributed to numerous factors, several of which are widely disputed. China sights a sort of dual relationship, a partnership that yields positive results for both parties but critics suggest that China is gaining an advantage that will boost its own economy and suck the African continent dry.

Colleen Caro
Mentor: Melanie Link-Perez, Biology

*Uncharted Terrain: Exploring Novel Plants for Botany Education*

Today’s classrooms offer minimal organismal options for teaching basic plant anatomy and morphology. Typically, the K-16 botanical education curriculum is based off of the use of onion bulbs, potato tubers, and common bean seeds. Because these plants have proven
themselves sustainable and reliable for basic educational purposes, few teachers venture into new botanical terrain. As a result of this stunted growth in botany expansion, our research group presented the question of what other plants could prove just as useful. Over the last several months a variety of different plant species were grown from seed to determine if they could become future tools for education such as microscopy objectives, anatomy, transpiration rates, success rates of germination and even expressing the diversity of propagation methods. The variety of plant species grown for this project will allow several non-traditional choices to replace common and overused organisms. Diversification will not only enhance general student interest in plants but will also allow multiple options for teaching purposes.

Desiree Chace, Mrinali Sharma, Dorey Thomas, and Amanda Murrell
Mentor: Brandon Quillian, Chemistry and Physics

One-pot Dehydration and Oxidative Co-dimerization of Benzylic Alcohols with Silver Triflate

New C–C bond technologies are an important area of study due to the usefulness of converting small molecules into value-added materials such as plastics and medicines. We have discovered a new one-pot procedure to convert benzylic alcohols in new C–C coupling products. Specifically, reaction of benzylic alcohols with silver trifluoromethane sulfonate (AgOTf) at 90˚C in dioxane leads to the co-dimerization of vinylarene intermediates to yield en-dibenzences. Herein, we discuss our efforts to understand this unique reaction including mechanistic and substrate scope studies.

Lisa Co
Mentor: Rachel Green, AMT

Historical Woodcut Techniques applied to Modern Illustration

In my presentation, I would like to expound on the technique of western woodblock printmaking. I will cover woodblock printing history, aesthetic quality, and how I am applying these principles to my own work. I would also like to pinpoint certain artists whose work has influenced me such as: Kathe Kollwitz, Francisco Goya, and Barry Moser. In conjunction with the artists that have influenced me I would like to touch on artistic movements that hold ideals that I try to apply to my work, such as: German expressionism and art nouveau. In discussing woodblock printing, I will have slides that showcase the process involved in carving and printing a block. After discussing technical aspects, I will continue on to detail the conceptual focus of my work, which is an exploration of the mystical connection people have with the natural world as well as a concentration on bringing contemporary illustration to the traditional practice of woodblock printing.

Patricia Conover
Mentor: Deborah Jamieson, AMT

Art and Science: The Dividing Line

This presentation discusses the similarity between performance art and psychological experimentation, by referencing works of performance art, specifically the works of Marina Abramović and comparing them in kind to several socio-psychological experiments to find the difference between the two. The scientific method is used to analyze specific performances from concept to conclusion, referencing experiments in psychology to compare the similar aspects of
The presentation will suggest that the difference between scientific experimentation and performance art lay only within the realm of ethics.

**Clint Crawley, Mike Finlay, and Caitie Paskewich**

**Mentors:** George Davies, Physical Therapy
Julie Shappy, Physical Therapy
David Lake, Physical Therapy

*The Effects of Unloading on Participants with Knee Pain*

Over 18% of Americans are afflicted with knee pain. Pain is often an obstacle to patient treatment and recovery. Practitioners are constantly seeking new ways to increase patient compliance during recovery periods, which may facilitate patient’s return to their prior level of function. Alter-G case studies have shown reduced pain in some patients and may increase patient compliance. The purpose of this study was to utilize the Alter-G to assess pain levels of participants with painful knee pathologies. Participants were unweighted to varying degrees of body weight at a self-selected, normal walking speed. We hypothesized unweighting will decrease pain in the affected limb. This was an observational study. Since August 2013, there were 28 subjects and data will be collected through May 2014. The outcome measure was the Numeric Pain Rating Scale (NPRS). Each participant began by completing a Lysholm Scale, medical history questionnaire, and consent form. The study was conducted by placing each participant on the Alter-G. They had a 3 minute warm-up and self-selected their walking speed for all levels. Each level was a 10% increment. The participants walked two minutes at each level beginning at 100% and unweighting by 10% until they reached 50% of their body weight. From 50%-20%, the participants walked one minute. The NPRS data is currently being compiled and analyzed in order to determine whether results support or refute the hypothesis. The results will be presented at the symposium.

Eric Curry
**Mentor:** Jason Tatlock, History

*Ritual killings & Human Sacrifice in the Ancient Near East as Portrayed in Black Metal Music*

Hailing from its Satanic and neo-pagan origins in Europe, black metal has become increasingly popular around the world as one of the predominant metal subgenres. Distinctive in the fact that the genre is heavily opposed to Western societies reliance and funding upon Judeo-Christian principles and convictions, black metal remains fraught with numerous features and themes including underground cults, anti-Christianity, ritual murders, and human sacrifice. This article will discuss contemporary black metal music’s versions and interpretations of human sacrifice in the ancient Near East as expressed in the genre’s music and compositions.

Tamarra Daguisan
**Mentor:** Randall Reese, AMT

*Composing for a Single Line Instrument*

I wanted to create a piece for solo flute that was very mysterious. To create that mystery I avoided major and minor triads. Both of these triads have defined moods associated with them. The lack of these defined moods can leave a listener with a sense of ambiguity. In the motive of my piece I start with an interval of a perfect fifth, tonicizing the lower note of the pair. The third pitch is a halfstep below the upper note and contradicts the sense of tonality in the opening interval. The tension created is one of the drivers of this piece. From there I use compositional
techniques such as repetition, change of interval, augmentation, diminution, and linear expansion.

Joseph DiNatale  
Mentor: Joshua Lambert, Mathematics  
*The Electronic Computation of Simple Perfect Squared Squares*

"Squaring the square" is the problem of dissecting squares of integer side lengths into several smaller squares also of integer side lengths. It is known that an ordinary square may be dissected into at minimum 21 squares. For squares that describe cylinders, the lower bound is 20. To further decrease this lower bound, we consider squares that describe other quotient spaces, including Mobius bands, Klein bottles, and projective planes. We introduce an algorithmic approach for finding such squared squares, extending the results of S.J. Chapman.

Victoria Do  
Mentor: Jason Tatlock, History  
*Do you believe in Magic?: Exploring Human Sacrifice in Popular Culture with Harry Potter*

Initially, human sacrifice seems to conjure up images of ancient violence long past. Yet, upon closer inspection the religious themes bleed into contemporary worldviews in less lucid ways. The case with studying human sacrifice is that it is highly interpretive and dynamic, and in many forms still with us in popular culture. Harry Potter, as this paper will demonstrate, contains elements of human sacrifice. As a highly successful book and movie series aimed at children, it is a meaningful way to study the less obvious facets of human sacrifice in popular culture. Using a theoretical approach, this paper aims to interpret a theme of human sacrifice as central to the Harry Potter series.

Zandrill Ellis  
Mentor: Lara Wessel, CJSPS  
*The Effectiveness of Rape Shield Laws in Georgia*

This research addresses the effectiveness of the Rape Shield Law currently enforced in the state of Georgia, its revisions, and the Violence Against Women Act. Rape shield laws were initially introduced in the United States in 1974, with the passage of Michigan’s first rape shield law. The primary purpose of the rape shield law was to prohibit or limit the use of evidence of a victim’s past sexual history to undermine that victim’s credibility during a rape trial. The law was intended to protect victims from the invasion of their privacy, and to encourage them to come forward without having to fear that their sexual history would be used against them. This research is significant because it provides information on the history of rape shield law and reforms in Georgia and on the Violence Against Women Act (VAWA) to evaluate their effectiveness in the state of Georgia. This study is a state-level evaluation approach of determining whether or not the implementation of rape shield related legislation has an impact on the potential type of justice for rape victims. There isn’t a great amount of research done on this subject in regards to the state of Georgia, so this study could be easily used for state-by-state comparing purposes. Dating back to 1976, with Georgia’s initial attempt at a rape shield law, effort has been put into protecting rape victims in Georgia, and this study measures those efforts to determine the effectiveness. Overall, this study adds to the focus/study area of rape shield legislation effectiveness.
Justin Farquhar  
Mentor: Richard McGrath, Economics

Factors Influencing the Location Choices of Immigrants

The purpose of this research is to determine what factors influence the location choices of recent legal immigrants to the U.S. These factors include job growth, the percent of a state population that is foreign born, the relative restrictiveness of a state to immigrants, and others. Ordinary least squares linear regression analysis was used to test the dependent variable which was the number of immigrants working in a particular employment sector within a state as a percentage of the total labor force of that state. Immigrants will choose to live in areas that are experiencing growth over the mid to long run as well as in areas where employment prospects are greatest and where a significant immigrant population is already present. Furthermore, immigrants are more likely to work in the management, professional, and related employment sector than in any of the other five examined sectors.

Angela Edwards  
Mentor: Karen Holinger, English

High Art Aspirations in the Horror Films of Val Lewton

The career of Val Lewton is unique in the history of the horror genre. Arriving as a horror producer in the early 1940s, a time when American horror was mainly identified with the recognizable Universal monsters, Lewton was a somewhat reluctant participant in the genre. A man with lofty artistic aspirations and a love for painstakingly detailed research (Fujiwara 85), Lewton would initially appear unsuited for the environment of low-budget, quickly produced B horror to which he was assigned. However, the producer, working closely alongside his favored directors and other collaborators, defeated expectations to produce a series of stylish, emotionally complex horror films that are still studied and admired to the present day. By actively working against the exploitative designs of his superiors at RKO Studios, Lewton ambitiously sought to elevate his assigned films, to whatever degree he was able, from the domain of low art to high art. These efforts are primarily characterized by a disregard for crude or explicit depictions of the monstrous in favor of “suggestive horror” (Worland 185), the tropes of which, in Lewton’s case, are often related to his preoccupation with the darker or depressive side of human nature; additionally, Lewton attempted to incorporate, more problematically, prestigious literary elements or progressive social “messages” into several of his films. However compromised the resulting films may still have seemed to him, Lewton used these methods to create a type of horror that was at once highly personal and supremely nuanced in its suspenseful effects and thematic concerns.

Danielle Fialkowski  
Mentor: June Hopkins, History

Roosevelt and Stalin: Concessions Made at Conferences over Policies in Germany

During the Big Three Conferences held at Teheran and Yalta, President Franklin Roosevelt, Prime Minister Winston Churchill, and Soviet leader Joseph Stalin discussed the plans for a post war world. Each man had policies that were most important to him. Roosevelt wanted to form the United Nations, and have Soviet support in the Pacific War. Churchill wanted to keep the British Empire intact. Stalin wanted a weak and defeated Germany. Over the course of the Teheran Conference in 1943, and the Yalta Conference in 1945, Roosevelt and Stalin
came together, and decided what policies would be enacted in Germany after an Allied victory. Both men made some concessions during the negotiations; however, Roosevelt made many more than Stalin. Roosevelt needed Stalin’s support for his own agenda so he was inclined to agree with the Soviet leader’s demands for Germany. Stalin received virtually all of his demands, and sacrificed little to get them because of the concessions that Roosevelt allotted.

Rachel Flora
Mentor: Annie Mendenhall, LLP
The Importance of Being Literate: How Teachers Can Maximize Literacy Learning
This paper examines the link between literacy development and personality traits that students develop. Psychologically, people have a variety of personality traits that can affect how they react to schoolwork. For instance, those with a dominant Neuroticism trait may react poorly to a stressful learning environment. Other personality traits, like Conscientiousness, predict a strong work ethic. The dispositions of students, for the most part, affect their attitude towards literacy learning and school in general. Perceptions of learning can also affect the students’ attitudes towards learning. Teachers often don’t understand the effect that these traits have on their students, especially while teaching literacy. Some researchers suggest that a modeling approach will help students of all dispositions find value in learning literacy. This research is critical to literacy learning because many experts fail to take these traits into account. Recently, there has been a push among some educators to administer personality tests to their students to teach them how to learn better. There seems not to be a similar push for teachers to learn how to deal with deeply-ingrained personality traits. Teachers should realize that some students respond poorly to literacy learning for reasons that neither of them can control.

Leandra Gamble
Mentor: Amy Potter, Geography
The Walking Dead Wakes Up Tourism in Senoia, Georgia: Exploring a Fictional Landscape
Advertisements often describe Senoia, Georgia as “frozen in time.” This presentation will show how this town, seemingly locked in time, is an intentional alteration of the landscape. Prior to Raleigh Studios transforming the town into a picturesque backdrop for The Walking Dead and other films, Senoia Georgia was a sleepy town just an hour outside of Atlanta. Senoia was first spotted when Driving Miss Daisy was filmed there in 1989. The turning point for the town occurred when Raleigh Studios Co. made the town its live backdrop for filming in 2006. Building on the work of geographer Dydia Delyser, I seek to show the theoretical significance of fictional landscapes on the town of Senoia. This presentation will explain the importance of the filming industry and how it has altered the economy of the town with a population of 3,500 people. Utilizing various research methods, which include semi-structured interviews and photographic archives, I will discuss the goals of the entertainment industry and how it has impacted not only local residents but also place itself. I will draw attention to the new developments made by Raleigh Studios Co., the emergent tourism industry resulting from the highest rated TV series in drama, The Walking Dead, as well as the cultural collision that often occurs from the rapid changes occurring there.

Katherine Gaskin, Katherine Field, and Hannah Clements
Mentor: Jonathan Roberts, Psychology
Spatial Geometry Learning: Encoding of relative Enclosure size by Touch
There is continuing debate over the processes that underlie spatial orientation through the learning of environmental geometry, and recent work has begun comparing environmental geometry learning by touch to the learning of environmental geometry by vision. The purpose of the experiment was to look closer at the processes involved in the learning and utilization of landmarks and environmental geometry information, in a different modality, while reorienting. The study was a reconstruction of a previous experiment done by Sturz and Kelly (2009), which looked at the learning of features and geometry in spatial learning. Blind-folded human participants searched by touch for a target object hidden in one of four locations marked by distinctive textural cues located in the corners of a rectangular enclosure. Following training, we removed the distinctive textural cues and probed the extent to which participants learned the geometry of the enclosure. During test trials, all textural cues were rendered identical in texture, and the shape of the rectangular search space either remained the same or was modified to a relatively sized contracted rectangle, an expanded rectangle, or a square. In the rectangular enclosures, more of participants’ choice responses were allocated to the geometrically correct corners than to the geometrically incorrect corners. In the square enclosure, participants’ choice responses were allocated equivalently to each of the four corners. The results are compared with predictions obtained from different theoretical accounts of spatial learning. Results of previous studies testing this with vision are discussed with respect to the obtained results.

Haddy Gassama  
Mentor: Nalanda Roy, CJSPS

Courting a Continent

Africa has had a long history of exploitative relationships with the west. The tumultuous experience of the slave trade, colonialism, mercantilism, and neoliberalism has left the once rich continent, in a perpetual sate of recovery and “development”. Africa’s former colonial rulers still have major influence on the political and economic sectors of most African countries. The shackles of slavery were broken centuries ago, but the bonds of imperialism still remain between Africa and the west. The United States and Europe both have mutual benefits from their relationship with Africa; an abundant supply of natural resources, profit motives for foreign direct investments and political influence. Although the West has had a firm grip on its relationship with Africa, its influence is being challenged by a new comer. China a relatively new player in the arena of the “scramble for Africa” has been the subject of discourse amongst scholars. Chinese investments, development programs and overall influence is growing at a rapid rate within the African continent, causing its western counterparts an immense sense of unease.

**Samantha Greene  
Mentor: Bryan Riemann, Health Sciences

Comparison of neutral, wide and plié stances on hip adduction kinematics during squatting

Purpose: To compare effects of neutral (NS), wide (WS), and plié (PS) squat stance variations on hip adduction kinematics, squat depth, and repetition time. Methods: Twenty collegiate female soccer players performed one set of six repetitions using each stance variation in a randomized order while holding a 4.6 kg dumbbell. The feet were positioned with 1.5x anterior superior iliac spine (ASIS) distance separation during NS, while during WS and PS the feet were positioned with 3x ASIS distance separation. Dominant limb and sacral kinematic data were collected using an electromagnetic motion analysis system from which hip adduction, repetition time and squat depth were computed. Results: While there was no significant
differences in repetition time (P=.889), squat depth was significantly greater for the WS compared to NS (95% CI_{diff}=.014-.040m, P<.001) and PS (95% CI_{diff}=.012-.040m, P<.001). Peak abduction was attained at maximal squat depth for all three variations. PS peak abduction was significantly greater compared to NS (95% CI_{diff}:30.2-38.3°) and WS (95% CI_{diff}:11.2-17.5°). Additionally WS peak abduction was significantly greater than NS (95% CI_{diff}:15.2-24.5°). PS adduction-abduction range of motion was significantly greater compared to NS (95% CI_{diff}:8.1-20.9°) and WS (95% CI_{diff}:4.7-13.1°). Additionally, WS was significantly greater than NS (95% CI_{diff}:0.2-11.0°). Conclusion: Compared to NS, the WS and PS squats promoted both greater hip abduction range of motion and peak abduction. The addition of adopting a plié stance further increased both hip abduction measures despite a significantly less squat depth.

**Gregory Halbart and Danielle Burkett
Mentor: George Davies, Physical Therapy
David Lake, Physical Therapy

A Comparison of Isolated Total Leg Strengthening vs Functional Training on Strength, Balance, and Agility in Healthy Individuals

Traditional resistance training has been used as the main exercise regimen to improve athletic performance. However, recently an increasing emphasis has been placed on other aspects of performance such as speed, agility, and balance. Can a traditional resistance training program address all of these aspects or is a more functional program better suited to reach peak athletic function? The purpose of the study was to compare an isolated total leg-strengthening program (ISO) compared to a functional, integrated training program (FUN) on maximal power output, strength, balance, and agility in 40 healthy individuals. Furthermore, the intent was to create similar programs in training volume to allow for consistency between groups. Our hypothesis was the FUN program would provide larger gains than the ISO program in all measures: strength, balance, power, and agility. This was a prospective pre-test post-test randomized group design training study. Forty subjects were randomized by a computer number generator into either the ISO (20) or INT (20) training groups The ISO group consisted of eight isolated lower extremity exercises, while the FUN group consisted of eight lower extremity exercises that emphasized multi-joint, multi-planar movements. Training occurred twice a week for eight weeks. The subjects were assessed pre and post interventions with the following assessments: Biodex isokinetics, vertical jump height, balance stability, T-Test, and hand held dynamometry. Results will be analyzed using a repeated measures ANOVA at the completion of the training and data collection period. Final results, discussion and clinical applications will be presented at the symposium.

April Hannon and Casey Cox
Mentor: Nalanda Roy, CJSPS

Divided and Jaded: Are Burma's competing ethnic nationalisms the cause of Burma's disunity?

A nation-state is defined as one where the great majority of its’ citizens are conscious of a common identity and participate in the same culture. Though the scholarly consensus is that nation-states are modern constructions, those that live within the defined territorial borders of nation-states usually take this concept for granted. Many countries struggle to adopt a nation-state status. This is true for Burma. Burma, also known as Myanmar, has a history that prevents any unity within the state. From the name alone, it is evident that unity is an issue. Burma lacks a common national language, and the citizens often give their loyalties to their clans or ethnic
tribes rather than the government. The proximate cause for these factions lies in the constant distrust of the ruling government, and the consistent shortcomings of whatever ruling institution is in place. Currently Burma has made an effort to become more transparent to the world, but the unity, identity, and autonomy of its diverse nationalisms has hindered any effective progress towards creating national policy. By studying the different governments and ruling regimes, it is apparent that unity as a nation-state may never be a concept Burma achieves. This paper analyzes the question whether the root cause of Myanmar’s disunity is competing nationalisms among the indigenous population or Burma’s colonial history.

Erik Hanson
Mentor: Deborah Jamieson, AMT

*Exploring Heroism Through Women in the Visual Arts, Part I*

I was selected by Dr. Deborah Jamieson to participate in the Women in the Arts symposium for 2014. My section of the presentation, *Exploring Heroism through Women in the Visual Arts, Part I*, titled *Seduction Deduction: Alphonse Mucha’s Women*, explores the art of Alphonse Mucha, a Czech Republic born artist active during the art nouveau period at the turn of the 20th century. I discuss the ideas of women being used in advertisement, and how they were used as selling tools without going beyond skin deep qualities. I give a brief biography of Alphonse Mucha, but most of all look at specific examples of his advertising work, poster work, and his formal qualities and artistic style. Along with the other two presenters from the Women in the Arts symposium we create a seamless look at the lack of heroism in women in the visual arts for the first part, then go onto how women acted out against a male dominated art world in the second section. Finally we end with how there are heroic women creating art and depictions of heroic qualities in graphic art and advertising in the third presentation. I feel that my section will be very enjoyable and give a great observation on the visual senses and female form and heroism from 100 years ago, and present it to the current populous. Combined with the other two sections, it creates an amazing group presentation.

Erik Hanson
Mentor: Deborah Jamieson, AMT

*Communication Breakdown: That Which Conveys to the World*

My term paper for fall 2013 in Dr. Jamieson’s class on contemporary art and criticism was a comparison of art from the 1960s, specifically in response to the Vietnam War, and how it parallels today’s global issues. I wrote about how we all respond to tragedy in our own way, but as artists we are given skills that we can use to respond to such issues. I compared Felix Rene Mederos Pazos and Shepard Fairey’s art. I started with a history lesson on the Vietnam war, and why protesting became a big subject with this war unlike previous ones. I made visual, and historical comparisons, and give a connection to the subject matter and artists. I have quotes that Fairey has made about his process as a contemporary artist and what he tries to spread with his art as the message. Why he is an artist? What will his art mean when he is long gone? What does Fairey try to convey with his art campaign/company OBEY? I overall try to convey all these in a concise manner which summed up is that art is the great communicator, which stretches beyond time, culture, and history. I hope this is a topic that anyone would be greatly interested in, as we all need to be involved in something in this world, and that we can be involved through our skills as artists. Or even if we are not artists, that anyone can become involved with hot topics that affect us all.
Deontray Hicks  
Mentor: Nalanda Roy, CJSPS  
Assassination in Modern Society  
This paper researches the history of assassinations and their public response from United States citizens. Ten to Twenty years ago the issue of assassination within the United States (U.S.) would have raised large accounts of negative responses. Almost less than a decade ago, it was almost unheard of that the U.S. government would even consider assassination except for certain specific cases. Assassination was only done by non-state groups or actors within the U.S., but recently with the assassination of Osama Bin Laden through the use of drones and a special-forces military unit known as Seal Team Six, public view of assassination has garnered cheers and applause from much of the population. This paper poses and attempts to answer the question, “How and why has the methods of assassination and the American attitude toward assassinations changed since the 1960s as illustrated by the assassinations of the members of the Kennedy family, Martin Luther King, Osama Bin Laden and selected other cases between the 1960s to this modern era,” through the use of census information, public opinion polls, previous writings, and specific and relevant other sources.

Kyle Hillis  
Mentor: Clifford Padgett, Chemistry & Physics  
X-Ray Diffraction analysis of various crystalline N-oxide halogen bond complexes  
Halogen bonding is a strong directional interaction (like hydrogen bonding) between a halogen atom (typically iodine) and an electron donating atom (typically nitrogen). It is useful tool for crystal engineering and has been used in the development of smart materials that change color when impacted with sufficient force. A new class of halogen bonding systems has been characterized and simulated, in which the halogen bond is between iodine and oxygen in an N-oxide compound. These complexes were created by reacting organic iodide compounds and N-oxide containing aromatic compounds. Crystals of these complexes were studied using X-ray Diffraction (XRD). Experimental results revealed strong halogen bonds within the structure, indicating favorably toward N-O-I bond formation. Current research is being conducted on exploring different N-oxide compounds and the resulting strength in the halogen bonds.

**Nicholas Hipko  
Mentor: Bryan Riemann, Health Sciences  
George Davies, Physical Therapy  
Effects of ball mass on plyometric throwing exercise intensity  
PURPOSE: To quantify overhand plyometric throwing intensity between weighted medicine balls and sexes via amortization time (AT), ball contact (BC) and release (BR) momentum. METHODS: Following a warm-up, thirty-four healthy, college-aged adults, 17 men and 17 women, with overhand throwing experience, completed eight repetitions of 90°/90° plyometric throws against an angled trampoline with four medicine balls (1.0 kg, 1.5 kg, 2.0 kg, 2.5 kg). An electromagnetic tracking system (MotionMonitor, IST, Inc.) collected dominant arm kinematics. Hand kinematic data immediately following BC and prior to BR were considered to represent ball displacement. AT (time between BC and initiation of anterior ball displacement) and three dimensional ball momentum (resultant ball velocity x mass) were averaged across five trials. RESULTS: No significant sex related differences were revealed. AT for the 2.5kg was
significantly longer than 1kg and 1.5kg. AT for 2.0kg was statistically equal to the other balls. Ball momentum was significantly greater at BR (end of concentric phase) compared to BR (beginning of eccentric phase). Ball momentum increased significantly in a linear manner with each ball mass progression. CONCLUSIONS: AT was statistically equal between the 1kg, 1.5kg and 2kg. Contact with the trampoline resulted in a 37.7% decrease in ball momentum across all ball masses; exercise intensity (ball momentum), of the eccentric phases were less than the concentric phases. Relative to the 1kg, each additional .5kg ball mass was associated with a 50% increase in intensity. For performance enhancement, the 2kg ball maximizes intensity without prolonging the stretch shortening cycle.

**Kari Hodgdon and Sarah Davis**
Mentor: Nancy Wofford, Physical Therapy
   David Lake, Physical Therapy
   George Davies, Physical Therapy

*The Effects of Hip Abductor and External Rotator Fatigue in Patients With Patellofemoral Pain Syndrome, Compared to Healthy Individuals*

Patellofemoral Pain Syndrome (PFPS) is a leading cause of pain and disability in active individuals. The purpose of this study was to determine the effects of fatigue-induced hip weakness on knee alignment and performance in healthy individuals compared to those with PFPS. Fifteen healthy and fifteen PFPS subjects were tested using five performance tests: single leg step down, drop-jump, single leg hop, Vertec, and hand-held dynamometry (HHD) before and after fatigue of either the external rotators (ER) or abductors (ABD) of the hip. Data was analyzed using a repeated measures multivariate ANOVA (RM-MANOVA). RM-MANOVA showed an overall significant difference in performance tests. There were significant pre-post differences, between-group differences, and pre-post interaction by group. There were no pre-post differences in step down and Vertec. There were pre-post differences in drop jump and single leg hop; these differences were not dependent on group. There was an overall pre-post significant difference in HHD and this difference was dependent upon group assignment. There was a significant decline in ABD strength compared to ER strength following fatigue within the PFPS subjects. The majority of the subjects demonstrated a decrease in performance after fatigue. There were no differential effects between ER or ABD fatigue in any functional measure with the exception of HHD. There was a greater HHD decline in ABD fatigue when compared to ER fatigue in PFPS subjects. Therefore, it is important to perform strengthening exercises for hip ABD and ER to treat patients with PFPS and may aid in prevention of lower extremity injuries.

David Hoover
Mentor: Michael Toma, Economics.

*I Feel Like Shooting Myself in the Face after taking this God-forsaken Class: The Effects of RateMyProfessors.com on University Course Registration*

This study examines the effects of the RateMyProfessors.com professor ratings on course registration behavior of students at Armstrong Atlantic State University in Savannah, GA for the spring semester of 2012. OLS and survival analysis are employed with similar results. Prominent RateMyProfessors.com reported measures of overall quality, easiness, and attractiveness are determined to be positively related to course enrollment.

Matthew Hunt
The Fall of the Samurai

Countries and their leaders around the world see Cyber Warfare as the most dangerous threat to national and global security (even more so than terrorism), especially in the United States. The threats that the capabilities owned by those entities that wage cyber war pose are vast and dangerous. The types of viruses, malware, and cyber weapons unleashed upon the world in a bout of cyber warfare can be crippling and deadly, both to the societies that they affect and to the people that live within them. Instances of cyber warfare have already occurred, with critical damage to infrastructure and harm to human beings having already been recorded. Growing worries that wars waged in cyberspace and the attacks that come from them could potentially result in widespread and irreparable damage to important societal infrastructures like government, the economy, national and global stock markets, power grids, social networks, military networks and programs, and to the lives of people as a whole have lead a greater collective sense of urgency around the world that something must be done. Some nation-states and global organizations have made great progress in understanding and developing both offensive and defensive cyber capabilities, especially countries like the United States, Russia, and China. As a collective whole the world is still trying to get a handle on this new and ever-evolving threat and on how to best prepare for its more frequent application in the fields of domestic policy, foreign policy, and global politics now and in the years to come.

Nicholas Ingebretsen
Mentor: Aaron Schrey, Biology

Epigenetic Genotyping-by-Sequencing to Explore Rapid Adaptation in House Sparrows,

Epigenetics is the change of gene expression without altering permanent changes to the DNA. Epigenetics could affect gene regulation of individuals to generate adaptation to a new environment within one generation. Thus, epigenetic mechanisms can facilitate or directly cause organisms to adapt much more quickly than is possible by purely genetic means. The House Sparrow (Passer domestics) is found throughout the world and in a wide array of different environments all over the world. House Sparrows have been introduced in many locations and have rapidly adapted to these novel habitats. The goal of this paper is to explore the epigenetic variation among House Sparrows from Kenya, a location a recent introduction where House Sparrows are currently adapting. We will develop and optimize a genotyping-by-sequencing protocol that detects epigenetic variation using an Ion Torrent Personal Genomics Machine and bisulfite treatment. We will screen up to 20,000 unique DNA segments in 15 Kenyan House Sparrows collected from 3 different environments. We will compare the changes in genetic and epigenetic variation among these individuals to determine if the pattern of epigenetic variation follows the different environments.

Volha Kalodzitsa
Mentor: Richard McGrath, Economics

What factors affect life expectancy from 2007 to 2009 in countries in European Union

Life expectancy has been improving in most European countries recently. This paper examines the factors affecting life expectancy from 2007 to 2009 in twenty countries in the European Union (Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, and Sweden). This study focuses on medical determinants of health
such as presence of tuberculosis, hospital beds, and non-medical determinants such as beer consumption, sugar consumption, and animal fat consumption. This paper also examines economic and social variables such as health expenditure, income, unemployment, and environmental variables such as inland water. The study showed that the determinants with a positive impact on life expectancy are GDP per capita, health expenditure, beer consumption, and inland water, while the determinants with a negative impact on life expectancy are animal fat consumption, number of hospital beds, unemployment rate, sugar consumption, and tuberculosis. The research analysis method used in this study is ordinary least squares (OLS) multivariate linear regression.

**Matthew Kenreich**
Mentor: Bryan Riemann, Health Sciences

**Lead limb selection during drop jumps affects initial vertical ground reaction force symmetry**

Earlier research examining vertical-ground-reaction-force (vGRF) symmetry during drop jumps (DJ) performed with the dominant (DOM) limb leading yielded a favoring of DOM limb. The effects of leading with non-dominant (NDOM) on vGRF symmetry are unknown. **Purpose:** Determine effect of lead-limb on bilateral-asymmetries on initial-vGRF-characteristics while performing DJ from 30, 45, 60, 75 cm heights. **Methods:** 24 physically-active men with six+ months resistance-training experience completed a familiarization session DJ technique was taught. Landing with each foot on adjacent forceplates, subjects immediately performed maximal effort vertical jumps. Subjects alternated the lead limb during the drop-phase. The familiarization session ended when proper technique was demonstrated. Following a 72-hour recovery-period, subjects completed eight DJ from each height during which the recorded vGRF, normalized to body weight (BW), under the DOM, NDOM feet were used to compute ground-contact-time, loading-rate, and impulse differences. Lead limb and height were randomly assigned for each subject. Height by lead-limb repeated-measures analysis of variance was conducted for each outcome-measure. **Results:** For initial ground-contact-time, when leading with NDOM, the DOM limb made ground contact significantly ($P<.05$) earlier than the NDOM at each drop-height. Additionally, when leading with NDOM, the loading-rates were significantly greater for DOM vs NDOM. **Conclusion:** When leading with the NDOM, significantly greater asymmetry favoring the DOM limb was revealed in all vGRF characteristics. This suggests subjects should perform drop-jumps leading with DOM for greater landing symmetry. Future research should consider vGRF characteristics later during ground-contact-phase and initial-contact kinematics.

Derek Lartey-Yiung
Mentor: Nalanda Roy, CJSPS

**Cyber Security**

Cyber security is a major concern that is rarely mention in our society. I conducted my research project on this issue in order to bring awareness to this matter. Cyber terrorism is a serious threat, it is just as fatal as any typical terrorist attack. The idea of a cyber-attack does not pose much of a threat because of how often it has been portrayed in the media, our society has grown numb to it and have concluded that it can all be stopped by a push of a button. Cyber security is a big deal and I wish to educate the masses about it by presenting my presentation on cyber security at the research symposium.
Morgan Lamb, Madalynn Walker, and Anthony Hawkins  
Mentor: Jennifer Bailey, Biology  
Kathryn Kraven, Biology  

**Characterization of Bacteria Present in Failed Loggerhead Sea Turtle (Caretta caretta) Eggs**  
Loggerhead hatch success is significantly lower in Georgia than for sea turtles globally. Microbial infection represents one explanation for why eggs fail to hatch. The fungus *Fusarium solani* has been implicated in loggerhead egg death on Boavista Island (Cape Verde, Africa), a major nesting site. The potential involvement of *F. solani* in embryo mortality in coastal Georgia has not been explored. In 2010 and 2012, 72 failed loggerhead eggs from 14 Jekyll Island, GA nests were screened for the presence of fungi. DNA was extracted from aseptically collected egg fluid and screened by PCR using fungal-specific primers (ITS5F and ITS4Rev) that amplify the internal transcribed spacer (ITS) region. With each PCR run, a positive control (*Fusarium solani* genomic DNA) and a no template control was performed. Fungi were detected in the vast majority of the nests (93.8%), with 66.7% of the failed eggs producing a fungal PCR product. While members of the fungal genera *Penicillium*, *Capnodiales*, *Aspergillus* and *Dothideales* were present, *Fusarium* was by far the most frequently detected genus in the failed eggs (90.6% of ITS sequences). 83.3% of all failed eggs analyzed (n=36) tested positive for *F. solani*. The two *F. solani* types detected in this study have nearly identical nucleotide sequence (>99.5% identity over 581 nucleotides) to those implicated in loggerhead egg failure on Boa Vista Island. While it was not known whether this organism contributed to embryo mortality in the sampled eggs, this is the first known report of *F. solani* in North American loggerhead eggs.

Daniel Lee  
Mentor: Traci Ness, Biology; Robert Visalli (Mercer); and Melissa Visalli (Mercer)  

**Structure-Function Analysis of the Varicella-zoster Virus Portal Protein (ORF54)**  
Varicella-zoster virus (VZV), our model organism, is a human specific herpesvirus, which causes chickenpox (Varicella) and shingles (Zoster). Recently it has been shown that the VZV ORF54 protein (portal protein) is a potential antiviral target. This research project focuses on determining which regions of the ORF54 protein are essential for portal structure and function. The ORF54 gene was amplified from wild type VZV genomic DNA and cloned into pJet1.2. ORF54 plasmid DNA was mutagenized with the Thermo Scientific Transposon (Tn) Mutation Generation System Kit. This system allows for efficient construction of linker scanning libraries for functional analyses of proteins. The insertion clones contain a 15 bp insertion in the target DNA resulting in five additional in-frame amino acids in the protein. Individual clones were screened via PCR followed by Not I digestion to identify transposon containing ORF54 genes. The location of individual insertions was confirmed via DNA sequencing. An ORF54 insertion map was generated indicating the location of >20 individual, unique insertion mutants. Each mutant ORF54 gene was recombined back into the VZV genome. VZV-ORF54 insertion mutants were assayed for viral replication and classified as either lethal or viable. Regions identified as essential for function or structure of the portal protein may be novel targets for the development of new antivirals.

Jacob Lee  
Mentor: Aaron Schrey, Biology  

**Epigenetic response to invasive species: Short term potential of DNA methylation**
The Eastern Fence Lizard (Sceloporus undulates) is a common lizard species found throughout the Southeastern United States. In areas where Red Imported Fire Ants (Solenopsis invicta) have invaded the lizard’s range, they act as a stressor and the lizards exhibit changes in both physical stature and behavior. Over the past years, lizards living in ranges exposed to the Red Fire Ant have significantly longer legs, and an increased likelihood of shaking and fleeing. Our objective is to determine if epigenetic variation has an effect on the Eastern Fence Lizards response to the Red Imported Fire Ant. We will use MS-AFLP and met-AFLP to compare DNA methylation among adult female Eastern Fence Lizards and their offspring using fragment analysis. We will then compare the DNA methylation among the offspring before and after post-experimental treatments. Lastly, we will correlate variation in DNA methylation patterns to variation in phenotypes to observe if the methylation is possibly directly affecting phenotypes.

Albana Mani  
Mentor: Nalanda Roy, CJSPS

**Global Poverty**

This presentation on global poverty addresses an issue that everyone on this planet should have. All of earth’s inhabitants require food, water, shelter, and healthcare. This presentation defines poverty in a practical manner that urges individuals not only notice it, but to take action against it. There are more than one billion sufferers on this planet who do not have nutritious food to eat, potable water to drink, protection from the elements, or adequate medical care. Most of these men, women, and children reside in Africa. Our own survival depends in great measure upon our willingness to reach outside of ourselves to help others. The conscience of the world needs to be awakened to the plights of her impoverished before it becomes more calloused and hardened. Developing a careless attitude will ensure that we destroy each other along with our planet. It is the united voice of the impoverished that needs to be heard. Efforts at volunteerism and aid are not enough to abolish global poverty. Governance of regulations needs to be addressed within each country. There needs to be added support to the legal entities so that supplies actually reach their intended recipients. Rules for international trade need to be addressed so that impoverished countries are able to help themselves. Large corporations need to be held accountable for their labor practices and product choices. These steps for individual and collective efforts are addressed and elaborated upon in this presentation.

**Kyra Marshall and Tessa Elliott**  
Mentor: George Davies, Physical Therapy  
David Lake, Physical Therapy

**The Effect of Sitting on Exercise Balls on Non-Specific Lower Back Pain and Core Endurance**

Purpose: To determine if sitting on a stability ball for 90 minutes a day would increase core endurance and/or change low back pain (LBP) levels compared to sitting in a chair.  
Design: Prospective randomized cross-over design. Subjects: 71 participants from Armstrong Atlantic State University, with or without LBP, ages 18-55 years. Methods: Participants were randomly allocated into two groups for the ball in either fall or spring semesters. For eight weeks in the fall, half the participants were instructed to sit on their assigned ball for up to 90 minutes 5 days per week (intervention) and the other half were to continue sitting in normal chairs (control). After an 8-week washout period, participants were assigned to the opposite group. Outcome Measures: The dependent variables included core endurance and LBP. Core endurance was measured by four tests: the isometric trunk flexion test, bilateral side plank, and
the Sorenson trunk extension test. The Oswestry Disability Index (ODI) and an eleven point numerical pain rating scale (NPRS) were used to quantify LBP. Results: Data collection and analysis will be completed by the time of the presentation. Discussion/Conclusions: This information will be presented at the symposium.

**Sami Mastrario**  
Mentor: Allison Belzer, History  
“Our family is a little world:” The Relationships and Political Ideas of a Radical Nineteenth-Century British Family, 1840-1890  

Nineteenth-century British historiography has just recently begun studying the cultural significance of family within history. Familial relationships, whether between a husband and wife, father and child, or siblings, has great influence on a person’s political ideas. The Shaen family of London yields a remarkable story. William Shaen, a prominent Unitarian lawyer, and his wife Emily Winkworth Shaen supported many radical causes, including co-founding Bedford College for women, agitating for abolition of slavery, fighting for Italian unification during the Risorgimento, and working to repeal the Contagious Disease Acts. Perhaps due to their atypical upbringing, which included providing unusual financial freedoms, their children modeled their lives after their parents’ and took up the same causes after their parents’ deaths. Using images and archival evidence, the story of their commitments reveals much about the priorities of a middle-class Victorian family.

**Alyse Meador**  
Mentor: Regina Rahimi, Early Childhood Education  
Marking C Isn’t for Me: Examining the Impact of Assessment in America’s 21st Century Schools  

The field of education is increasingly becoming known by its calls for accountability, and in turn, multi-teared levels of assessment have been constructed to provide data for evaluative purposes. Although local level common assessments are being used to determine classroom progress, research shows that these tests contain validity issues and are often inappropriately matched to the level of curriculum being taught. Similarly, student achievement data shows that the End of Course tests used to determine proficiency for high school courses have failed to reach their goal of bridging performance gaps within Georgia. While higher level achievement tests such as the NAEP, PISA and TIMSS allow for comparison across states and amongst nations, evidence suggests that these assessments do very little in terms of effectively identifying areas of improvement for students. While this web of testing seems to completely deflect focus from the individual learner, concerns with inaccuracy and inefficiency raise many implications for how schools, states, and countries will continue to maintain accurate accountability for student progress within the 21st century.

Stephen Medlar  
Mentor: Randall Reese, AMT  
Stephen Primatic, AMT  
What was the Composer Thinking, and Why Should I Care?  

It is necessary to form an understanding through analysis of a major piece of music in order to successfully perform it. Eric Ewazen’s Concerto for Marimba and String Orchestra is defined as a contemporary classical piece because it was composed recently, but does it reflect the characteristics of the era as far as style and harmony? The melody of the piece is almost
entirely devoid of non-chord tones – a characteristic not only atypical of the Contemporary era, but also all other eras in western art music. Ewazen’s musical language borrows elements from other eras without directly imitating them. He blends these elements with the idioms of the solo marimba to create a piece that avoids the stereotypes of the contemporary era while maintaining the compositional freedom. I will present examples of these elements, both borrowed and contrasting, and describe how the composer’s musical language affects the performer’s approach and preparation.

**Amanda Mitchell**  
Mentor: Bryan Riemann, Health Sciences  
*Comparison of Upper Extremity Muscle Activation Between Different Inertial Exercise Equipment*

Inertial training involves alternating concentric and eccentric muscle actions to change the acceleration of a mass. Two popular inertial training devices include the Bodyblade® (BB) and Shake Weight® (SW); with respect to the SW, little data concerning muscle activation exists. PURPOSE: To compare anterior deltoid (AD), triceps brachii (TB), biceps brachii (BB), and pectoralis major (sternal and clavicular portions) (PM-S, PM-C) muscle activity during four unilateral exercises between the SW (1.1kg), BB (.68kg), and a standard dumbbell (DB) (.90kg). METHODS: Seventeen physically active females completed four exercises chosen to selectively target each muscle by varying shoulder and elbow positions. Devices were oscillated 30s in each position. Device/exercise order was randomly established per subject with a minute rest between exercises and two minutes rest between devices. Mean surface electromyographical amplitude and number of oscillations were computed for the middle 24s. RESULTS: A muscle by device by position analysis revealed significant device main effect (P=.05). Muscle activation was significantly greater for BB compared to SW (P = 0.005, 95%CI_{diff}:0.002 - 0.010mV). No significant differences between DB and BB (P = 0.341, 95%CI_{diff}:-0.003 - 0.009) or SW and DB (P = 0.179, 95%CI_{diff}:-0.002 - 0.009). The number of oscillations for DB was significantly less compared to BB (P = 0.026, 95%CI_{diff}:1.07-14.46) and SW (P = 0.045, 95%CI_{diff}:2-14.39). CONCLUSION: These results revealed that the SW failed to produce greater activation than a DB and less activation than the BB. The greatest muscle activation in all positions was produced by the BB and DB.

**Allyson Morgan**  
Mentor: Regina Rahimi, Early Childhood Education  
*Problem Based Learning in the English Language Arts Classroom*

Teachers face a constant battle between authentic assessment and managing the expectations of accountability practices in education. In order for students to be prepared thinkers and problem solvers of the future, schools must develop problem solving skills and offer opportunities to practice and master complex and inquiry-based thinking. Additionally, the implementation of Common Core State Standards places a new emphasis on critical thinking skills through more challenging reading, connections of reading to writing tasks, and students constantly coming up with new ideas that require support and evidence, which adds to the stressful balance teachers must practice. Problem-based learning allows students to explore a problem and give a possible solution through research, inquiry, and collaborative learning. When executed properly, can powerfully facilitate the authentic learning and assessment research shows best facilitates these 21st century skills. However, linking this type of lesson planning
with other expectations often pose difficulty or frustration on both the teacher’s side and the students who need constant support during collaboration and research learning activities. The purpose of this study will be to develop and refine the implementation of problem-based learning in a 7th grade English Language Arts classroom. In order to effectively implement this method of lesson planning, instruction, and assessment, methodical analysis and reflection must take place on the practices and their success and failure. This study will be guided by the pursuit of a full understanding of creation and implementation of problem-based learning as a tool to increase student achievement, motivation, and engagement in classroom learning activities.

Kenneth Mosely  
Mentor: Randall Reese, AMT

*Setting a Satirical Text to Music*

There are two principal areas of concern when setting text to music. The semantic component of setting the text involves creating a musical mood that complements the mood of the text. The prosody of a text involves creating an accent structure of music that complements the accent and metrical structure of the text. My focus in this presentation will be on the semantic elements. The text I selected was a poem by Fred Chapel titled *Listen up, Evildoers Everywhere*. This is a satirical poem with a humorous flair. My task was to communicate the poem’s satire through my composition. To accomplish this I used musical humor combined with certain musical devices to establish a sense of playfulness. The principal device I used was musical allusion. I adapted chord progressions and themes from popular culture and referenced them in my work. This creates an air of familiarity and an atmosphere that is quickly recognizable, enabling the composition to be understood by a broader audience. The final product is my musical essay on Fred Chapel’s poem.

Sharma Mrinali  
Mentor: Traci Ness, Biology  
James Knapp, Biology

*Kinetic Characterization of 2,3-Bisphosphoglycerate Mutase (BPGM)*

Sickle Cell Anemia is a genetic disease that impacts approximately 100,000 people in the United States. Characteristics of this disease include acute and chronic pain. The illness results from the polymerization of deoxy HbS. 2,3-Bisphosphoglycerate (BPG), a metabolite made by BPGM, promotes the polymerization reaction. Inhibition of BPGM is likely to reduce BPG production, thereby reducing HbS polymerization. In our research studies, novel spectrophotometer assay based on a pH indicator was used to measure the enzymatic activity. BPGM was purified and analyzed by the assay. Through the assay, we studied how different concentrations of BPG, time, and order of addition affected the rate. The data is analyzed in terms of the Lineweaver-Burk Plot, in order to determine the $K_m$ and $V_{max}$. For further studies, the results obtained will be compared to published radiometer assay studies.

Oneida Eleni Muniz and Lance Michon Craig  
Mentor: Suzanne Carpenter, Chemistry and Physics  
Richard Wallace, Chemistry and Physics

*The Isolation of Potential Antimicrobial Compounds from Tillandsia usneoides*

Infectious organisms have evolved to resist the antibiotics designed to kill them. Because this is a recurring problem in the medical field, there is a major push to find more effective
drugs. If antimicrobial agents can be isolated from Tillandsia usneoides (Spanish moss) then these agents could be commercialized in the pharmaceutical industry. Samples of Tillandsia usneoides were collected on campus. Microwave-assisted extraction (MAE) and ultrasound-assisted extraction (UAE) were performed to degrade the cell walls of Tillandsia usneoides and release the organic compounds. MAE involves uniformly heating samples to a temperature above the boiling point of the solvent used. UAE involves disrupting samples with consistent ultrasonic waves. Upon completion of the extraction, samples were filtered and evaporated. Solutions were prepared from the extraction residue and screened in Dr. Lofland’s research lab (Department of Diagnostic and Therapeutic Sciences) for antimicrobial activity. The above methods were repeated using water, methanol, and toluene to assist in the extraction of organic compounds ranging from very polar to nonpolar, respectively. Results comparing methods and solvents were collected in an effort to maximize extraction. Preliminarily, MAE with methanol was found to be optimal. Pending the outcome of the screening, further investigation of the extract mixture is planned.

Leticia Nascimento
Mentor: Traci Ness, Biology

The role of Jun Dimerization Protein 2 on p53-MDM2 pathway

Tumor suppressor p53, encoded by the gene TP53, acts as a tumor suppressor by conserving stability in the cell cycle with the prevention of genome mutation. TP53 is mutated in approximately half of all human cancers and p53 is down-regulated in a large majority of the remainder. We recently found that Jun Dimerization Protein 2 (JDP2), part of the AP-1 family of transcription factors, plays a role in regulating and stabilizing p53. It has been known that MDM2 is the most important negative regulator of p53. Therefore, the aim of this study was to investigate the role of JDP2 on P53-MDM2 pathway. First, we observed that JDP2 physically interacts with MDM2. Second, the level of MDM2 was significantly decreased by ectopic JDP2 in a dose-dependent manner, but not by ATF3, which shares high homology with JDP2 in its C-terminus. Furthermore, we demonstrated that in the presence of MG132, a proteasomal inhibitor, MDM2 degradation by JDP2 was lost, suggesting that JDP2 decreases MDM2 levels by proteasomal degradation. In order to pinpoint the region of JDP2 that is required for JDP2-mediated MDM2 degradation, JDP2 was truncated to different sizes. By mapping the sequence of JDP2, we provide evidence that the region between 140 and 163 in JDP2 is required for degradation of MDM2. Overall, we provide evidence that JDP2 interacts and decreases the levels of MDM2 by proteasomal degradation and that the region between 140 and 163 of JDP2 is required for that degradation.

Caryn Nelson
Mentor: Sarah Gremillion, Biology

Adverse Effects of smoke-induced Endoplasmic Reticulum Stress on inflammation, small airway fibrosis, and air space enlargement

Identification of factors induced by cigarette smoke (CS) responsible for progression of Chronic Obstructive Pulmonary Disease (COPD) is vital for developing new treatments. We previously identified Activating Transcription Factor 6 (ATF6), an Endoplasmic Reticulum (ER) stress sensor, as an early cellular responder to CS-exposure. We hypothesized that transcriptional program induced by ATF6 may contribute to pathogenesis of COPD and analyzed COPD-related lung phenotypes of atf6-deficient mice following chronic CS-exposure. Wild type (WT) and
atf6-deficient mice were exposed to CS from 4 cigarettes a day for 6 months. Macrophage accumulation was followed by immunohistochemical staining for macrophage specific antigen, Mac3. Small airway fibrosis was analyzed by collagen deposition around airways using Trichrome staining. Airspace size was measured by calculating average alveolar chord length using a specially developed logarithm. CS-mediated effects on body weight were followed by recording animal weights prior to, and post CS-exposure. ATF6 activation following one-time smoking was robust and lasted for over 16 hours. ATF6 activation resulted in ER stress dependent up-regulation of ER chaperones as well as contributed to induction of pro-apoptotic signaling. atf6-deficient smokers developed milder lung inflammation and smaller air space enlargement compared to WT counterparts. Small airway fibrosis and CS-induced weight loss were prevented in atf6-deficient smokers. ATF6 activation has both protective and pro-apoptotic components. Inhibiting ATF6 lowers inflammation and tissue destruction and abolishes small airway fibrosis, making ATF6 pathway a good candidate for the development of future therapeutics for COPD.

Amir Quezada
Mentor: Jason Tatlock, History

The Ten Lost Tribes: Facts and Fiction

The ten lost tribes of Israel remain one of the mysteries of the ancient world. Frequently they are mentioned by religious officials who maintain that upon the fall of the northern Kingdom of Israel, that the ten tribes residing therein were exiled to the ends of the Earth by the Assyrians and must be reunited with the Jewish people before Armageddon. I intend to research into the fact and fiction to uncover the real truth behind the historic event of dispersal. My methodology will consist of a thorough study of both ancient and modern sources. My understanding of Hebrew will be essential in studying the Biblical writings, while in the modern day, science and DNA studies can help to uncover peoples who may be descended from the ancient Israelites. The results must show how much of the story of the story about the ten lost tribes is true and how much isn’t. If any were exiled, it must be found how many and which tribes, as well as if possible, where they now reside. If the entire story is a legend, then the legend must be traced to the original source. In summary, using both historical texts such as the Tanakh, as well as modern scientific methods such as DNA studies, I will attempt to find what truth, if any, lies in the legend of the ten lost tribes of Israel which were said to have been scattered to the ends of the Earth.

Maria Isabella Olmos
Mentor: Michael Toma, Economics

The Brand Name Content of NCAA Conference Name and Student Graduation Rates

This study considers factors that affect graduation rates from 62 universities grouped by five NCAA conferences. The name of the NCAA conference constitutes a brand name that can provide information about athletic prowess, academic quality, and other facets of the university product. When controlling for various student and university characteristics, evidence is provided that NCAA conference affiliation is significantly associated with graduation rate.
Nathan Peek  
Mentor: Will Lynch, Chemistry and Physics  
*Iron complexes of tris-1-ethyl-4-methyylimidazolylphosphine, synthesis and structure determination*

Our research has been focused on the synthesis and characterization of transition metal “open face” complexes using a tridentate ligand. The ligand, tris-1-ethyl-4-methyimidazolylphosphine (T1Et4MIP) is used as it preferentially binds in a 1 to 1 stoichiometry with metal ions. This tridentate binding motif, observed in the majority of complexes, provides a labile side to the metal system which can be exploited to prepare a variety of complexes. The ligand is also a relevant biomimetic model for histidine residues in bioinorganic metalloenzyme systems. The complexes are generally prepared by the reaction of the ligand with metal precursors to form complexes which are analyzed by various spectroscopic and structural techniques. The synthesis of the ligand and several transition metal complexes of general formula \([M(T1Et4MIP)X_n]Y_m\) will be presented as well as the complex characterization by spectroscopic and X-ray methods.

Mayra Perez  
Mentor: Bruce Mallard, Liberal Studies  
*Business and Human Rights*

The rapid growth of electronics and the high public demand plus competitive pricing has been enjoyed by America’s nation-wide. However, the gruesome truth is that these products have been enjoyed at the expense of many Chinese lives. Major companies like Apple have had a huge growth in recent years which has required them to increase production of their famous products. Because of the high demand of Apple products across the world and especially in the United States the economic power that a corporation like Apple yields is enormous. In order to produce large quantities of products in a short amount of time and at a competitive price many corporations hire production companies like Foxconn to manufacture their products. Companies like Foxconn depend on migrant workers as the primary labor force. As a result the migrant workers do not receive any kind of benefits or most importantly any kind of protection from the government. As a result many manufacturing companies violate several human rights. Worker’s living conditions and working conditions along with more than 100 overtime hours have driven several employees to commit suicides. The major global issue is that due to globalization and the widespread increased necessity in first world countries of material like electronics is resulted in the exploitation of several humans around the world. Although this research will be focused mainly in China and the Apple corporation this is an issues that involves industries anywhere from retail clothing to food markets and countries from El Salvador to Bangladesh.

John Potter  
Mentor: Jason Tatlock, History  
*Dude, Where are the Hanging Gardens?*

The Babylonians and Assyrians planted gardens in cities, palace courtyards, and temples, to recreate their concept of Paradise. The most famous of these gardens are the Hanging Gardens of Babylon, one of the Seven Wonders of the Ancient World. Throughout history, several individuals have tried to place the gardens at King Nebuchadnezzar II palace during his reign. Recently, there has been new light on the topic that possibly identify the gardens were at the palace of King Sennacherib in Nineveh. During his reign, he often referred to Nineveh as...
“Babylon,” thus causing some confusion over time. Also, there are sculpture reliefs that show the gardens in the palaces in Nineveh.

Britney Prince
Mentor: Angela Horne, AMT

The Art of 3D Printing

For the upcoming 2014 Student Scholar Symposium I plan to present on what 3D printing is, how it works, how we have been using it at Armstrong in the Fine Arts Department, and how it can be used and what the future may hold for 3D printing. We have used the Makerbot Replicator 2 Desktop 3D printer for many events and workshops since I began my undergraduate student research position and I plan to use much of the knowledge gained from my experiences to teach the attendees about how they too can gain access to this technology. I will also include images from some of the events that I have participated in such as the Pulse Technology and Art Festival, Edcamp Savannah, and workshops.

Britney Prince
Mentor: Deborah Jamieson, AMT

Exploring Heroism Through Women in the Visual Arts, Part II

Throughout history heroism has been defined as those who show great courage, valor, boldness, audacity, and fearlessness through their actions. However, after weeks of careful research, I have found myself asking the question, “Were there ever any great woman artists and if so where have all of the great woman in art history gone?” After some very extensive research I came to a very surprising conclusion. For the last 30 years, The Guerrilla Girls have been striving to define and answer the same question and, in doing so, have become symbols of heroism themselves. By trying to bring attention to gender and racial inequality within the world of fine arts, The Guerrilla Girls have made great strides and changed the world of fine arts for women everywhere. My research paper discusses and explores the question, “Were there ever any great woman artists and if so where have all of the great woman in art history gone?” It also reviews how the Guerrilla Girls are involved in this discussion of women in the arts and how they too have been asking the same question and trying to bring gender inequality within the world of fine arts to life.

Jessica Puckett
Mentor: Felicity Turner, History

The Portrayal of Abortion through Television since the Legalization of Roe vs. Wade

The topic of reproductive rights has always been one of controversy. My studies focus on the portrayal of abortions in the media via television in the United States. My research begins with television shows that were produced around the time when Roe vs. Wade made abortions legal in the United States, through present day. My project focuses on the portrayal of abortion through the television and if matches public opinion of the time, certain demographics that they might be trying to reach out to, and overall has the nation progressed in reproductive rights and if this progress is being seen with the media through our television.

**Jordan Purser and Megan Lloyd
Mentor: Regina Rahimi, Early Childhood Education

Co-Teaching a Poetry Unit to a Modern Classroom
Co-teaching is becoming more and more pervasive throughout mainstream education. In most typical high schools, co-teaching classrooms are the norm for “on level” students. Because of this, it has become more necessary to shift lesson planning to accommodate such classrooms. Teachers need to be able to work with and around each other smoothly, lessons and activities need to be suited to the needs of the particular students, and the assessments should adequately reflect expectations that are reasonable for varying levels of student ability. This particular unit focuses on poetry for a 9th grade Language Arts class. It utilizes co-teaching strategies to be able to effectively manipulate a classroom so that everyone’s needs are met. By mixing “traditional” poetry with more modern song lyrics and lesser known “fun” poems, students are better able to relate to the content and therefore will be more apt to latch on to a subject that some Language Arts teachers dread teaching. The co-teaching style becomes a major asset for students with varying degrees of ability in one classroom and allows both teachers to engage and excite students with poetry.

Deana Rausch
Mentor: Ella Howard, History

_The Decline of Orphanages in the United States with Regards to St. Mary’s Home in Savannah, Georgia_

In its early years, St. Mary’s Home accepted orphaned girls with little regulations except they must be orphaned and between the ages of one and eighteen. In the year 1886, the Society applied regulations to those children accepted into the home. Regulations included the age of girls accepted was changed to three to twelve years of age, the girls must be orphaned or from a single parent home unable to run the household, and they must be in danger or abandoned. Those girls who already were housed in the home would be released to the next of kin at their eighteenth birthday. During the early 1900s, the Society changed the regulations again to include that the residence of the girls would only be as long as the parental inability persisted. These regulations remained in place until 1969 when the state of Georgia put regulations into place. The regulations, including an extensive medical exam and academic records to ensure proper placement, began to change the way the Sisters of Mercy and Society were able to accept young girls and boys (who began being accepted in 1967). The change in state and federal laws would later lead to the closure of a staple point in orphan care in Savannah and Southeast Georgia.

Thomas Reams and Ryan Oliff
Mentor: Brent Feske, Chemistry and Physics

_Biocatalytic reduction of a non-aromatic nitro group by a nitroreductase from Salmonella typhimurium_

A nitroreductase from _Salmonella typhimurium_ (NRSal) was studied for its ability to reduce an aliphatic nitro group. Biocatalysts in this family of Old Yellow Enzymes are known to catalyze a wide range of reactions, but the ability of this reductase to reduce a non-aromatic nitro group has not been previously reported. We have demonstrated that 1-phenyl-2-nitroprene can be reduced by NRSal and through a biocatalytic Nef-reaction yields the corresponding ketone in approximately 60% yield. The availability of a biocatalyst that performs this conversion is extremely limited, which makes this reaction very interesting.

Anna Reiter
Mentor: June Hopkins, History

Alice Paul: Gender Radicalism and the Passage of the Nineteenth Amendment

When Congress passed the Nineteenth Amendment on January 10, 1919, and the states ratified it the following year, many women who, in 1848, had begun the movement to enfranchise women were long dead. Although the constitutional right for women, as American citizens, to vote may seem obvious to twenty-first century minds, it had always been denied to American women. Women suffragists faced social and political obstacles that sometimes seemed impossible to overcome. As the twentieth century began, support for the cause dwindled and the suffrage movement was in danger of evaporating. However, the movement was revitalized by an important shift in leadership from the “white-gloved” National American Women’s Suffrage Association under Carrie Chapman Catt to the radical National Women’s Party under the leadership of Alice Paul. It was under Paul’s leadership that the Women’s Suffrage Movement caught the attention of the press, of the public, and, consequently, of the federal government. Alice Paul’s radical strategies, her flaunting of society's gender roles by picketing the White House and staging hunger strikes, contributed an important momentum to the movement and without her activism the Nineteenth Amendment might not have been passed and ratified.

Elizabeth Rhaney
Mentor: Deborah Jamieson, AMT

Inside the World of Lee Krasner

Lee Krasner was a member of the Abstract Expressionists. The group, which included her husband Jackson Pollock, emphasized the individuality of each artist. Their work was often challenging to understand and inspired by images and thoughts from their subconscious. Krasner once said in an interview, "I think my painting is so autobiographical if anyone can take the trouble to read it." My paper I will examines five of her paintings, each from a different period in her life, to determine if her work is autobiographical. By examining her materials and approach, intentions behind the work, and her own words, I will suggest what her paintings reveal about her life.

Nathan Rich
Mentor: Kathleen Burke, CJSPS

Georgia Dream Act, a proposed policy memo

Healthy and sustainable immigration is of grave importance to the state of Georgia. Key legislative adjustments are needed to guide a healthy transition of policy realignment between state and federal policy, particularly in regards to the education of undocumented immigrants. The current argument emerged in light of the introduction of President Obama’s Deferred Action of Childhood Arrivals (DACA) directive in August 2012 granting “legal presence” to those who meet a set criteria. Since, the Georgia Illegal Immigration Reform and Enforcement Act of 2011 (HB 87) and the Board of Regents Policy Handbook, section 4.3.4 Verification of Lawful Presence have been thrust into the national spotlight in a heated debate which I predict will shape the Republican Party and it’s viability both in state-wide contests and national races. The DACA directive has sparked contentious debate on both sides of the ideological spectrum, and in order to unify competing factions I have highlighted two primary focuses I believe compromise can be sought, and common ground secured: social and economic health. There are severe
implications for both, but that is not to deny other areas and subfields, only reinforcing that the fungibility of this issue is immense.

Nathan Rich
Mentor: Nalanda Roy, CJSPS

*Education: The Forgotten Catalyst of Globalization*

This paper examines the origins of the recognition of primary education as a right, and the significance this understanding has on transforming global institutions. The United Nations, World Bank, and International Monetary Fund all view education as the primary means to achieve prominence. By analyzing the data of the implementation of a universal primary education system, one will notice the emergence of trends indicating regional economic impacts. This correlation between education and economic power allows us to identify trends and make predictions as to the significance a state has in the global system.

Ebene’ Robinson
Mentor: Dr. Elizabeth Desnoyers-Colas, AMT

*Harriet Tubman: Unveiling the Woman Warrior, Spy, and Healer*

Harriet Tubman (an illiterate, escaped slave and African-American woman) is believed to be the first American Woman to ever lead troops into battle, be appointed to spy for the Union Army. She served as a nurse to troops and escaped slaves during the Civil War. Data was collected from The Schomburg Center for Research in Black Culture, The Smithsonian Institution Archives, and The Library of Congress. Primary sources were located (including government documents, newspapers, and letters written between military officials). Secondary sources such as written oral histories were discovered from Tubman’s living relatives and biographies of Tubman were also found. It is evident that Tubman was selectively chosen by the Union Army to serve as both a spy and (as Tubman Biographer Earl Conrad writes) “liaison representative between the Northern Soldiers” and escaped slaves (often referred to as contraband). She was stationed in the encampment of Beaufort, South Carolina in 1862 under Union Major General David Hunter. Major Hunter was Commander of the Department of the South. He issued General order No. 11 which declared escaped slaves free in Florida, South Carolina, and Georgia; and, immediately began enlisting Black males in the Army. South Carolina had the first African-American Union army regiment. Major Hunter thought Tubman an asset. She established a community for the newly freed. However, despite her accomplishments, Harriet Tubman was denied military pension (though granted a nurse’s and widow’s pension).

Dustin Schie and James Liljenquist
Mentor: Ashraf Saad, CST

*An Exploration of Video Processing and Wireless Communication to Facilitate Multi-robot Coordination*

A major hurdle in the creation of a testbed that facilitates multi-robot coordination is the requirement for the communication between the robots to not only be extremely fast, but also highly accurate. Meeting these requirements will improve the likelihood of obtaining reliable experimental data, and also allow for the robots to operate in a decentralized way. In order to achieve these goals, a system that is able to both track robot positions and pass this information along at a high rate of speed would need to be developed. Our implementation of this type of
system involves the use of an overhead camera that streams a video feed of the testbed to a central computer. This computer then processes the feed using an image processing algorithm to identify and track all robots in real-time. The algorithms derive position, orientation, and other spatial information. This information is then dispersed to the robots by means of wireless communication. Using this data, each robot then has a basic model of its surroundings and is able to perform tasks in cooperation with the other robots. Our presentation covers the research, design, and development involved in constructing this type of system, including the hardware acquired and the software written. This work will be presented orally and in conjunction with live demonstration of different multi-robot configurations.

**Meaghan Singletary**
Mentor: Regina Rahimi, Early Childhood Education

*Educational Assessment: Gauging Student Learning From the Classroom to the International Stage*

Educational assessment can take on many different forms, and teachers at every instructional level engage in, analyze, and report assessment data for various purposes--ideally, to inform and guide instruction. Ours is a nation driven by data, and schools are no exception. Data is constantly being farmed from our classrooms, and schools are held accountable for the increase in achievement. Whether they were flagged as “needs improvement” under No Child Left Behind or “focus schools” under Race to the Top, accountability is, quite significantly, based on student assessment data, including closing achievement gaps between targeted groups. This report seeks to explore the types, history, and rationale of the assessments used at the classroom/local, state, national, and international level and provide an analysis of those assessments.

Ayanna Thompson
Mentor: Lauren Mason, LLP

*Space and Perception*

For my project, I would like to briefly explore urban spaces and how space affects a person’s perception of him/herself, how that person is perceived by his/her peers and what those labels can mean for that person. I would like to compare these perceptions and possibly help present a means of better understanding certain aspects of urban spaces in comparison to non-urban spaces. I would like to briefly establish that there are reasons for the differences in the economy of urban spaces versus non-urban spaces and that this indeed has bearings on the perception of individuals who live in these spaces. This includes the opportunities that are or are not presented to him/her and things of this nature. I am not quite certain where exactly this research will lead but I plan to present my findings orally with visual aids such as a PowerPoint and possibly a video clip or two. I would like to pull my information from readings from my Race and Poverty Narratives class such as *The Genesis of the Tenement* from *How the Other Half Lives* by Jacob Riis.

Stephanie Thompson
Mentor: Jason Tatlock. History

*I Thought There Would Be Answers: The Mysterious Great Sphinx of Giza*
The purpose of this research is to examine the ancient mysteries that surround the Great Sphinx of Giza. Despite extensive research, regarding the history of the Sphinx there is little evidence found to debunk the larger myths such as who built it, when was it built and the possibility of secret chambers in or under the Sphinx. The research draws upon primary sources and secondary sources, including steles, published works, and memoirs of exploration. The answers to the mysterious Great Sphinx of Giza remain indefinite while highlighting the need for an advance in technology to accurately date and identify matter encompassing the Sphinx while preserving the historical monument.

Karina Varela  
Mentor: Regina Rahimi, Early Childhood Education  
_Military Families_

The purpose of this paper is to discuss the impact military families have on the education of children. The topics discussed include the impact of moving has on children, the effect a deployment can have, and how parents suffering from Post-Traumatic Stress Disorder can influence a child’s behavior. There are resources to help children and families who are going through these issues. They include Veteran Combat Call Center to speak to other veterans for those suffering from PTSD, Military Child Education Coalition, Families Over Coming Under Stress, National Military Family Association, and Operation: Military Kids.

Duong Vo  
Mentor: Jack Simmons, Philosophy  
_The Universal Principles of Evolution_

The development of evolutionary theory since Darwinian time has spread exponentially in popularity in the “hard” sciences such as biology, but there is still a disconnection between the “soft” sciences and evolution. This works wants to develop a functional theory of evolution where it can be apply universally to both natural and social sciences. The definition of evolution according to this work is evolution sustains organized systems through high fidelity replication of information. In biology the fundamental unit of change in evolution is the gene itself, but to apply evolution to cultural changes using a genetic code sometimes does not pan out very well. Therefore instead of using genes we propose using information as the source of what is being change from both a biological and cultural perspective. There are five essential components in which information evolves.

1. High fidelity replication of information with 0% < survival rate < 100%  
2. Expendable replication technology distinct from the replication information  
3. Inert information that provides no kinetic energy to the replication process  
4. Demonstrates a quantifiable resistance to entropy  
5. Demonstrates intentionality  

These distinctive qualities can then be applied to cultural evolution such as the evolving democratic system that we live in, and how that information change in regards to the five components. This system can also logically explain the idea of Darwinian evolution from a biological perspective.

Duong Vo and Tammy Nguyen  
Mentor: Aaron Schrey, Biology  
_Ecological Epigenetics of Two Lizards from Habitats with Different Fire History_
Ecological epigenetics is a new discipline that could provide insight into the study of evolution. Our research project is looking at epigenetic differences between the six-lined racerunner (Aspidoscelis sexlineata) and the Florida scrub lizard (Sceloporus woodi). These two species have different ecological characteristics; importantly, the Six-lined racerunner has a high dispersal capability and the Florida scrub lizard has very low dispersal capability. We are interested in determining if the different dispersal capabilities correlate with different epigenetic characteristics between the two species. We will use metAFLP to screen epigenetic variation in individuals of each species that were collected concurrently from five locations. Each location is known to have a different time-since-last fire, which creates habitat diversity among sample locations. Habitat diversity is crucial in understanding the connection between ecological behaviors and epigenetic characteristics. We hypothesize that the Florida scrub lizard will have higher epigenetic diversity than the six-lined racerunner because the Florida scrub lizard’s low dispersal capabilities force it to confront the different local environments. The higher the epigenetic diversity, the higher the potentiality for organismal phenotypic diversity, which increases the flexibility of Florida scrub lizard’s response to the environment. This could be an important feature of organisms that do not have high dispersal capabilities, and must respond to different environments.

Kayla Weaver  
Mentor: Ashraf Saad, CST

*Learning Braille Visually*

It has been proven through past studies that a visual learner learns best when seeing the content to be learned. Until now, there has not been a standardized method for learning to read Braille visually. This software application is designed specifically for those who need to learn to read Braille visually; this includes visual learners who are slowly going blind, teachers of the visually impaired, family and friends of a person who utilizes Braille, and many more demographics. Using JavaFX and MySQL, this application was developed using a State Design Pattern which reduces overhead for the user by only loading the states the user wishes to visit instead of every possible state that the user could visit. Each user has the option to visit a learning state where the history of Braille can be read, the different types of Braille are explained, or the different Braille characters are displayed. There are several game states that support interactive learning through games such as Concentration and Secret Number. There are quiz states that measures the users’ current knowledge of Braille. Translator and text editor states provide environments to practice reading Braille visually and writing Braille via a QWERTY keyboard. With these features and more, a visual learner will be able to successfully learn how to read Braille visually as well as write Braille on a computer. With a little practice, these skills can be adapted so the user can read and write Braille tactiley.

Amy Williams  
Mentor: Anne Katz, Early Childhood Education

*Making Reading ‘Cool’ Through Technology and Literacy Integration: Motivating young Adult Readers and Facilitating Higher-Level Critical Thinking Skills through Blog Book Reviews and Student-Generated Literacy Websites,*

This literacy initiative focused on motivating young adult readers through the creation of blog book reviews and student-generated literacy websites at East Broad Street School in the Savannah-Chatham County School District. Working with individual 6th, 7th and
8th grade students, we guided students to select independent reading books on their Lexile reading levels, engaged in critical discussion around the text using Bloom’s Taxonomy as a framework, facilitated journal writing on insights gleaned while reading, researched new vocabulary terms, and helped students synthesize their ideas in writing. Students created original profiles of themselves as readers and personal book reviews on a Wix template. This interactive blog site served as a platform for encouraging peers to participate in summer reading endeavors.

Cori Witte  
Mentor: Amy Potter, History  

_St. Augustine, Florida "The Ever-Faithful City"

Founded in 1565 and part of the United States since 1821, St. Augustine, Florida continues to celebrate their Seventeenth century Spanish heritage as if they were apart of Spain. My research project sought to understand how the city’s Spanish past has manifested itself onto the present-day cultural landscape. My objectives for this research project were to demonstrate all the ways that the colonial Spanish period is still influencing the oldest, continuously occupied settlement in the United States, and how the marketing of the city as a tourist destination centers on this connection. In order to address these objectives, I utilized a multi-methodological approach: participant observation, informal interviews, and archival research. While conducting my research in St. Augustine, I examined many different focal points of the city, such as landscape names, historical monuments, architecture, city functions, sister-city exchanges and Spanish-promoted tourism. Over the course of my research, I found St. Augustine’s tourism industry draws upon their Spanish identity offering visitors a chance to “relive history in the Spanish Quarter, where the narrow streets and historical recreations recall the colonial days.” Recent surveys cite visitors choose to come to St Augustine specifically for their history/heritage tourism. Original monuments and street names reflect the Spanish heritage through cultural land markers reminding visitors of the rich Spanish heritage dating back nearly 500 years. St. Augustine has also maintained many of its Spanish traditions and promotes Spanish ties through sister-city relations, in an effort to remain “the ever-faithful city.”