
PRESENTATIONS 9:00-9:20

BSC 102W

Healthy Lifestyles Theme House Experience

Authors: Martha Vorder Bruegge, Soleil Danet, Pinyan Xu, Xinyao Li,
Ryland All, Jieyu (Arlene) Guo

Adviser: Dean Suzanne Onorato

The experience of living in the Healthy Lifestyles Theme House for this school year has allowed us to foster a beneficial environment for all of our members and the ASC community because this great opportunity has pushed us to personally achieve our goal of obtaining a healthy lifestyle. The purpose of this theme house is to improve our health through fitness, nutrition, and mental wellness while educating other students how to make healthy decisions in their life. The goals we set out to accomplish throughout the year consist of gaining healthier habits, improved physiques, leadership experience, and more self-confidence. We hosted house and campus events that provided strategies and information for improved healthy living. Campus events include pool parties, Zumba Night, community service at Fountainview Center for Alzheimer's disease, and a Farmer's Market trip. House events have included SnapFitness Night, Fitness Scheduling, Book of Stress, movie nights, Dealing with Stress dinner discussion, meditation and yoga, brunches, and weekend exercise. Each member aimed to fulfill a short-term goal and a long-term goal to inspire personal growth. We will demonstrate our journey of achieving these goals, what we learned from this experience, and the challenges and successes associated with the experience.

BSC 103W**Religious Education and Pedagogy: A Quaker in the Making**

Author: Emma Roberts

Adviser: Professor Douglas Falen

This presentation examines the educational theory and pedagogy of the Quaker community in Atlanta. The existing literature on religious pedagogy is sparse when it comes to religious education within the Society of Friends but it generally supports the idea that the six Quaker testimonies of Simplicity, Peace, Integrity, Community, Equality, and Stewardship are integral to the religious education for Young Friends. Based on ethnographic fieldwork conducted during the Spring semester of 2015, this presentation explores what religious education looks like within the Atlanta Friends Meeting, the goals of adult volunteers when they are working with Young Friends, and the theory behind their teaching methods. This presentation also summarizes the cumulative experiences of birthright Quakers and their perspective on Quaker pedagogy in contrast with the perspective of newer Meeting members. In contrast to other faiths and their education methods, Quaker pedagogy is considered to be more focused on social justice and anti-oppression. My conclusions show how Quaker pedagogy exists within a theoretical framework of Functionalism, Critical Race Theory, and Feminist Theory, and will contribute to literature on Quaker pedagogy, Anti-Oppression pedagogy, and Inter-Faith pedagogy.

Intent vs. Interpretation: Exploring the Work of Sally Mann

Authors: Ishara Agostini, Lauren Alexander, Taylor Williams

Adviser: Professor Esther Lee

Sally Mann is a large-format photographer who rose to prominence and notoriety in the early 1990s through her collection, *Immediate Family*. The collection featured black and white images of her children in eerie and often fantastical poses, with her children being nude in many. Her work was met with controversy particularly because of this nudity. Mann's work crafts a concept of childhood as an eerie and ethereal time through her use of black and white photographs of her children in rural Virginia, but her meaning is overshadowed by cultural connotations of jadedness and cynicism associated with the icons she uses in her images as seen in *Candy Cigarette (1989)*. This presentation explores the conflict between the artist's intention and the audience's interpretation through popular images, selections from the *Immediate Family* collection, critical reviews of the collection, and secondary interviews with the artist.

Extragalactic Needle in a Haystack: Discovering Ultra-Compact Dwarf Galaxies

Authors: Katie Butler, Dr. Michael West, Dr. Michael Gregg

Adviser: Professor Chris De Pree

We have used photometric and spectroscopic data from the Sloan Digital Sky Survey (SDSS) to search for ultra-compact dwarf galaxies (UCDs). UCDs are compact stellar systems that were discovered ~ 20 years ago. Formation theories are varied but the most accepted is that these objects are the nucleus of a dwarf galaxy that has lost its outer layers of stars through billions of years of gravitational interactions with larger galaxies. Over the course of the past year we have derived selection criteria from the previously discovered UCDs in order to construct successful search parameters to find undiscovered UCDs in SDSS. We used the statistical process of Principal Component Analysis to help narrow the color selection criteria down to the areas in which these objects shine most brightly and are therefore most identifiable. The color selection is a color space correlation in which the filters that the images were taken in are subtracted from each other in order to isolate UCDs from other contaminating galactic specimen. This analysis has returned 93 candidate objects. We have used other tests, including graphical models and spectral analysis to help confirm or reject these initial classifications as UCDs. This study is ongoing, and will lead to follow up observations being taken with the WIYN telescope in May 2015.

The Scn1a D1866Y Mouse Model of Genetic Epilepsy with Febrile Seizures, plus (GEFS+) Exhibits, Increased Seizure Susceptibility and Altered Behavior

Authors: Natasha Browder, Dr. Stacey B. Dutton, Dr. Andrew Escayg

Advisers: Professors Stacey B. Dutton and Jennifer Larimore

Mutations in the SCN1A gene, which encodes the voltage-gated sodium channel (VGSC) Nav1.1, have been linked to a variety of epilepsy conditions including genetic epilepsy with febrile seizures plus (GEFS+) and Dravet Syndrome. Within a GEFS+ family, affected members can display a variety of epilepsy phenotypes that differ in severity and age of onset. The D1866Y (DY) SCN1A GEFS+ mutation was identified in a family with four affected members displaying different epilepsy phenotypes. To gain a better understanding of the effect of this mutation, mice containing the human GEFS+ DY mutation were generated and evaluated for their susceptibility to several seizure induction paradigms. Heterozygous mutants exhibited increased susceptibility when compared to their wild type (WT) littermates. We also determined the effect of the mutation on mouse weight and survival. All three genotypes gained weight at a similar rate until P23, after which homozygous mutants began to lose weight and exhibited premature lethality. Heterozygous mutants and WT littermates exhibited normal lifespans and comparable body weights. Lastly, we evaluated the mice in a variety of behavioral paradigms and observed a series of alterations. Our findings demonstrate that the DY mutation alters the function of the Nav1.1 channel, leading to increased seizure susceptibility and behavioral abnormalities in the heterozygous mutants and reduced lifespan of the homozygous mutants.

Gender Wage Gap Differences Between the Government and the Private Sectors of the American Economy

Author: Karolina Klimczak

Adviser: Professor Patricia Schneider

In my research, I revisit the study of Paul Miller “The Gender Pay Gap in the US: Does Sector Make a Difference?” which examines the gender pay gap across the wage distribution in the United States public and private sectors in 1999. I use data for 2013 from the Integrated Public Microdata Series (IPUMS). The data analysis part of my research consists of two sections. First, I calculate the gap in the natural logarithm of total income for males and females in the public and private sectors separately. Second, I run two sets of regressions for each sector: OLS and quantile regression. The dependent variable is the natural logarithm of total income in each sector and the independent variables are: sex, race (White/Black), Hispanic, marital status and age. The preliminary results suggest that comparing to 1999, in 2013 women still earn less across the wage distribution in both sectors and the gap is still larger in the private sector, except for the first decile of the wage distribution where it is larger in the public sector. However, comparing to 1999, the pay figures increased for both genders and the gap decreased in both sectors, except for the top 40% of wage distribution in the public sector where the gap increased.

Fireworks in the Brain: Stress, Happiness, and the Physiological Effects of Music

Author: Emily Vanchella

Adviser: Professor Tracey Laird

Music has the capacity to move us. It can lift us out of a spell of sadness and calm feelings of stress. But why does music have such power? Research at the intersection of music and neuroscience can help answer this question by revealing the physiological effect music has on the human brain. Listening to music activates brain regions and chemicals that are associated with happiness. Further, music listening can calm or even inhibit activity in brain regions and chemicals associated with stress. After outlining the physiological effects of music on the brain, this presentation will examine the implications of these findings for music therapy. For example, does music's ability to activate "happy" regions and chemicals aid patients with depression? Could music's calming effect on "stress" regions and chemicals soothe the effects of anxiety disorders? Finally, when over-activation of brain regions or excess/deficiencies in chemicals may be contributing to such psychological conditions, can music help alleviate the symptoms?

PRESENTATIONS 9:25-9:45

BSC 102W

Prospective Memory in Air Traffic Control

Authors: Julia Chowdhury, Sadif Kazi

Adviser: Dr. Frank T. Durso

Prospective memory (ProM) involves remembering that something has to be done and when (the intent trigger), remembering what has to be done (the content), and remembering that the trigger and content are associated. We examined trigger-content associations in interleaved ProM by using paradigms from paired associates learning. After encoding a ProM task (A-B), participants experienced a control interruption or an interruption that gave them a second ProM task. The second ProM task either presented a new trigger (C-B), a new content (A-D), or a new trigger and content (C-D). The retrieval of the original ProM task was then tested. Compared to the control interruption, ProM interruptions that presented a new content led to poorer detection of the trigger and poorer recall of the content of the original ProM task. In contrast, performance was comparable to the control interruption when the ProM interruption shared the content with the original ProM task. These results support a distinction between intent and content in ProM and demonstrate that it is important to consider intent-content associations for interleaved ProM.

Vodou and Catholicism: A Romance in Disguise

Author: Shima St. Germain

Adviser: Dr. Douglas Falen

The literature on Vodou and Catholicism explores how the belief systems have influenced the formation of Haitian identity and culture; both in Haiti and the U.S. Much scholarship focuses on how the Haitian peoples use the two religious belief systems to create and maintain their own perceptions, attitudes and stories. This presentation will outline data found in interviews conducted with Haitian Catholics. It examines the elements that shape Haitian Catholics' views of Vodou explaining how cultural traditions and religious upbringing influenced practitioners' understanding of Vodou. The data sheds light on a complex relationship filled with contradictions. For example, there is a belief that Vodou is not a religion while also being one. Vodou cannot be a religion since it is perceived to be involved in the supernatural, it lacks control, and practitioners profit physically from it. However, Vodou is a religion to those who practice it; thereby implying that religions or belief systems are subjective to those who practice them. The research will contribute to literature on the Haitian community in the Atlanta area. Although there is abundance of research on the Haitian Diaspora in America, many are either conducted in Haiti or at sites (New York, Boston, Miami, etc.) populated by larger Haitian communities. Therefore, my data will offer new perspective on areas, such as Atlanta, that have seen increase in Haitian migration and yet receive little to no attention by researchers.

Fairy Tales on the Margins

Author: Kelly Piggott

Adviser: Professor Charlotte Artese

This presentation is a culmination of my work from my senior seminar and senior thesis in creative writing, which involves a series of short stories retelling folk tales, fairy tales and myths for an LGBT+ audience. Over the course of two semesters, my work has expanded to discuss and highlight not only the members of the LGBT+ community, but also being inclusive towards similar groups that have been marginalized throughout history. My retelling of fairy tales are written in the historical voice and are historical pieces. I chose not to do modernizations of fairy tales, though they have great importance in the community, as I want to show how the issues of those who are forced into the margins of society have always existed, and despite the difference in time period, contemporary readers can still relate and empathize with the plights of the characters. My purpose for choosing this particular audience to write for is to give representation to a historically oppressed group.

For my SpARC presentation, I will be reading a segment from one of my more recently finished short stories, "Monsters in the Oven," a retelling of two Italian folktales combined into one. The folktales I combined were "Rosina in the Oven" and "Bellinda and the Monster." An additional element of my research is that I specifically chose not to use either Hans Christian Andersen, the Grimm Brothers, nor Perrault as resources, but I instead read collections of tales from various continents and regions, not just Western European tales. Regions that caught my attention were areas that had a great amount cross-cultural interaction, such as the Mediterranean, North Africa, Russia, Eurasia and the Middle East.

The Language of Experimental Physics: Simulating and Analyzing Cherenkov Radiation Using C++ and Python

Author: Victoria Wood

Adviser: Professor Nicole Ackerman

Cherenkov Luminescence Imaging (CLI) is a technique used to track the diffusion of medicine through the body by observing Cherenkov light produced by radioactive decays. In order to investigate the effectiveness of CLI, we developed a virtual experiment in the simulation toolkit Geant4. This experiment simulates the production of Cherenkov light in a simple geometry and collects data on the light hitting a virtual camera for imaging. We then developed a script in the Python programming language to function as the 'lens' of the camera. The data collected from the Geant4 simulation was then put into the Python script and transformed based on the principles of geometric optics and ray matrix propagation. Using this virtual lens, we can generate focused images of the Cherenkov light and gauge the efficacy of CLI for this and future experiments.

BSC 210E

Skeletons in our Closet: A Study of the Biology Department's Human Skeletons

Authors: Lydia Lingerfelt, Dr. John Pilger

Adviser: Professor John Pilger

Two human skeletons at Agnes Scott College have long been used as anatomical teaching tools within the biology department, but without any record of where they came from or how long they've been at the college. Professors and students alike wondered who these individuals were in life and how their bones came to be in a biology classroom. This project examines the historical presence of skeletons at Agnes Scott through school archives and alumnae survey, while the application of osteological techniques reconstruct biological aspects of their lives. More recently, DNA analysis has given insight into their genetic ancestry and some surprising results. As a follow up to a poster at SpARC 2014, this presentation will address new assessments of estimated age and sex of the individuals as well as pathological indicators of health and disease. Furthermore, I will outline common and possible sources of anatomical skeletons worldwide and argue for their cultural and historical significance in shaping a narrative for these individuals.

BSC 304E

Effects of the Hartz Reforms on Poverty and Unemployment in Germany

Author: Sarah Harris

Adviser: Professor Patricia Schneider

The Hartz reforms were created to decrease unemployment in Germany by reducing unemployment assistance. This was supposed to create a higher incentive for people to find employment. Using data from the SOEP, my research will look into the relationship of poverty in Germany before and after the Hartz reforms which occurred from 2003-2005 in Germany. I'm going to investigate how education, the unemployment rate, the unionization rate, annual GDP growth, labor force participation, and the years before and after the Hartz reforms effect poverty and unemployment in Germany. My preliminary

research shows that the long term unemployment as a whole for Germany has increased since 2005. However, it also shows that the unemployment rate for the people with tertiary education has decreased since 2005.

BSC 308

Personality and Stereotypes in Musicians

Author: Courtney Anderson

Adviser: Professor Tracey Laird

Research on the personality of musicians is a relatively recent area of study that seeks to identify consistent traits of musicians. Common traits that emerge in some studies include introversion, independence, and sensitivity. Some researchers extend the inquiry to include personality traits and stereotypes associated with musicians of different genres (classical, jazz, rock, etc.) and instrumentation (brass players versus string players, for instance). For example, to what extent is the stereotype that classical violinists are egotistical an accurate representation of their musical personality? From where do these stereotypes originate? To what extent does gender play a role in musical stereotypes? This research aims to identify the range of assertions about personality traits and musician stereotypes in different musical settings and examine the extent to which they may or may not be accurate.

PRESENTATIONS 9:50-10:10

BSC 102W

Therapeutic Equipollence: Dialectical Behavioral Therapy's Strength in Skeptical Influence

Author: Elliott Claytor

Adviser: Professor Hal Thorsrud

Dialectical Behavioral Therapy (DBT) has recently gained popularity as an approach to emotional disturbances to be used with or in the place of Cognitive Behavioral Therapy (CBT). The newer therapy resonates deeply with the ancient philosophical tradition of Pyrrhonian Skepticism. The works of the ancient skeptic Sextus Empiricus and DBT both operate from a relationship of affect to belief that challenges the framework assumed by traditional psychoanalysis and CBT. CBT predicates beliefs of emotion and action and attempts to change beliefs in order to influence outcomes, while DBT follows ancient skepticism in the effort to purge beliefs. Whereas CBT seeks to replace bad with good, skepticism suggests challenging beliefs with arguments of equal strength, and thereby neutralizing them. By placing beliefs in dialectic with equal and opposing arguments, DBT similarly seeks balance, with the skeptical suggestion that practicing such balance leads to tranquility. Where CBT's framework reinforces potentially harmful binary value judgments of emotional states and behaviors, DBT and its ancient influence advocate a non-judgmental stance and balance. Focusing on the similarities between the skeptical lifestyle and DBT's guidance for living, this presentation argues that both are therapeutically promising practices in their shared approach to tranquility through the striving for equipollence. Ultimately, DBT emerges as a more therapeutically effective approach than CBT, particularly due to its adaptation of the goals and methods of Pyrrhonian Skepticism as expressed by Sextus Empiricus.

“We are Communal Animals”: The Search for Social Connections through Intentional Communities

Author: Adia Paulete

Adviser: Professor Douglas Falen

Community is formed through a connection between individuals. Sometimes this communal connection is difficult to encounter, which is why many alternative communities have been formed. It is not until recently that social scientists have been researching different aspects of these types of community living, and there is little investigation on the individual experience within them. My study addresses alternative forms of community, called “intentional communities,” to examine the desire and impact of social cohesion for the individual. For my research I reviewed the major theories pertaining to the appeal of these lifestyles. I also conducted interviews on site at local intentional communities. My findings show that individuals in these communities hold the common goal of finding social familial bonds with those they live with. This motive to create and be a part of an intentional community comes out of feeling a sense of anomie, a disconnection, amidst the individualistic values in contemporary society. This research undermines stigmas about these residents as “hippies” or “cult followers” by revealing the understandable human desires lying behind these alternative communities.

“The New Mothers” Visual Analysis

Authors: Huda Khwaja, Shaniece Wilson, Danielle Teemer, Anner Harris

Adviser: Professor Esther Lee

Sally Mann is a prominent, recent photographer best known for her book *Immediate Family*, which contains photographs of her children. Many of the photographs depict themes and ideals that were influenced by Sally Mann's own life experiences. This presentation will examine how Sally Mann's photograph, "The New Mother," exemplifies the naïveté mothers embodied during childhood. With props such as candy cigarettes and toys, Mann's daughters Virginia and Jessie portray a picture of new mothers in the late 1980's that draw a striking similarity to the inexperienced mothers of Mann's childhood.

Cherenkov Detector Simulation of Radioactive Water Contamination using Geant4

Author: Lulu Liu

Advisers: Professors Chris De Pree and Nicole Ackerman

Cherenkov detectors are widely used for particle identification in high-energy physics and for tracking imaging in astrophysics. However it has never been used for detecting radioactive water contamination, a known health concern. In this work, we describe an approach using a Cherenkov detector to detect the radioactivity in water. We used data from 10 sites reported by others to have significant radioactivity levels. The simulation toolkit Geant4 was used to

predict the Cherenkov light output from these radioisotope types and concentrations. This research focuses on the collection of data from literature, identification of radioisotope decay chains, and analysis of the simulation results.

BSC 210E

The Effects of P-Loop and Switch-I Mutations on Kif5A Motility Rates

Author: Madeline Chenevert

Adviser: Dr. Thomas Huckaba, Xavier University

Kinesin is a motor protein responsible for transport along many types of cells. It generates movement by breaking down ATP through hydrolysis, changing its ability to adhere to the cell's cytoskeleton. Different families of kinesin travel at different speeds—the Kinesin-3 family moves at three times the speed of the Kinesin-1 family. The ATP hydrolysis site is identical between these two families with the exception of three amino acids in two locations: Switch-I and the P-Loop. If these differences are responsible for the increase in speed between the families, mutating the amino acids in a slower kinesin to match those in the faster one will result in a mutant with an increased speed. When the amino acids in Switch-I of Kif5A, a member of the Kinesin-1 family, are mutated to match those in the Kinesin-3 family Switch-I, Kif5A's function is impaired. It also experiences impairment when the P-Loop is mutated to match that of Kinesin-3. While the mutations harm Kif5A's function individually, they can repair its function to normal Kif5A speeds when inserted in tandem. While the original hypothesis was incorrect, these experiments can explore the role of amino acid interactions in protein function.

BSC 304E

Gender Differences in Ultimatum Bargaining Games

Author: Kayleigh McCrary

Adviser: Professor Li Qi

In an ultimatum game, one person makes a proposal about how to split a fixed amount of money, and the other either accepts or rejects, in which case both earn zero. If each person only cares about his or her own earnings, and if more money is preferred to less, then the proposer should be able to get away with offering a very small amount to the responder. Although rejections of positive amounts of money may seem irrational, economists have frequently observed this behavior as the receiver feels "spited."

This project modified the classic game to study gender differences in their expectations of fairness through their rejection rates. This study fills a gap in the literature by studying gender differences in the "receiving" end as well as the interaction of women and men in bargaining situations. It investigated whether men and women have different expectations of a "fair" outcome when bargaining with the same sex compared with bargaining with the opposite sex, and whether the rejection rates of low offers are different between men and women. The results showed higher rejection rates among women. Additionally, men's rejection rates changed depending on the gender of the proposer, while women's were consistent. It was concluded that women are more likely to behave irrationally if they feel spited, and men are more likely to base their behavior towards women off the notions of chivalry, whereas they view fellow men as competitors.

Meaningful Music-making: A Case Study

Author: Jiawen Wang

Adviser: Professor Tracey Laird

What makes the music-making process meaningful? Both structural and emotional elements contribute to the meaning of music. Structural meaning refers to the composition itself and the performer's careful expression following the composer's original ideas as notated on the score. Emotional meaning includes the individual feeling and subjective conceptualization that build up to the personal interpretation of a work. Ideas on how we evaluate both sources of meaning are examined by musicological, philosophical, and psychological studies. For example, psychologists develop experimental studies that measure adjustments to musical parameters made by performers to convey specific emotions. These and other approaches will be explored via a case study focused on the music-making process of "Capricious Toccata" by Augusta Read Thomas, including perspectives of the composer, performer, and listener.

10:10-10:50

POSTERS, EXHIBITS AND REFRESHMENTS
WOOLFORD B. BAKER ATRIUM, BULLOCK SCIENCE CENTER

See poster abstracts beginning on page 33.

PRESENTATIONS 10:50-11:10

BSC 102W

"Hear a Story, Tell a Story, Teach a Story": Refugee Learners and Digital Storytelling

Authors: Katrina Parsons, Sydney Britt, Hannah Goff, Aarmeen Merchant,
Jocelyn Calvillo

Adviser: Professor Toby Emert

In the spring of 2015, Agnes Scott students in EDU 325: Primary Research in Educational Settings, developed an action research project in partnership with students at the Global Village Project (GVP), an alternative middle school for the children of refugee families located in downtown Decatur, Georgia. Action research, also called teacher research, is a systematic approach to address the improvement of instructional techniques. The project, "Hear a Story, Tell a Story, Teach a Story," paired the ASC students with 14 girls from GVP, with the purpose of teaching a unit on digital storytelling and gathering data about the students' learning. The GVP students were presented with the task of synchronizing a short poem of their choosing with images and music to create a short movie using Windows MovieMaker. ASC students met with GVP students once a week to help accomplish this goal. Data collection included observation, interviews, and collection of all student learning artifacts, as well as weekly debriefing conversations. This presentation outlines the project

protocol, describes the digital storytelling unit, and offers a preliminary analysis of the data. It also includes examples of student artifacts, such as the films they created.

BSC 103W

Student Athlete Stress

Author: Ciara Micacchione

Adviser: Professor Douglas Falen

This presentation deals with the factors that influence student-athlete stress at Agnes Scott College. Previous scholarship conducted at Division I universities demonstrated the importance of understanding the unique stressors student-athletes face, but there are few studies at Division III schools like Agnes Scott. Based on interviews and surveys among student-athletes at Agnes Scott College, my research shows that excessive commitments and coaches' relationships are the main factors influencing student-athlete stress. These findings could provide important feedback for the athletic department and coaches to take into consideration to identify ways to control athletes' stress.

BSC 112W

Playing Grown-up: Analyzing "Candy Cigarette" and "The New Mothers" Photographs

Authors: Shriya Bhattacharya, Saamiya Gill, Sensei Larsen-Scott,
Esperance Mugabekazi

Adviser: Professor Esther Lee

Our presentation examines the work of Sally Mann, an American photographer who published a collection of black and white photographs of her children entitled *Immediate Family*. It was very controversial because there were several different interpretations of her work, such as displaying child pornography. In this presentation we will analyze, Candy Cigarette and The New Mothers photographs, both taken in 1989. The evolution of the photos is what we will analyze in this presentation. Mann's ten-year-old daughter "Jessie" is the subject in both photographs, in which she holds a cigarette. The single cigarette in Sally Mann's photographs of the Candy Cigarette and The New Mothers change the perception of the photographs and convey how eager children are to forego their innocence by assuming the roles of adults.

The Impact of Star-Forming Regions on the Structures of Three Galaxies

Author: Julia Chowdhury

Adviser: Professor Chris De Pree

The intent of this study is to pinpoint the location of massive star forming regions in spiral galaxies, and determine if these regions affect the overall structure of three selected spiral galaxies: NGC 1512, NGC 3079, and NGC 2997 (two barred spirals and one grand spiral, respectively). The three questions being assessed are: (1) where are the massive star forming regions located in these galaxies? (2) does the presence of high mass star-forming regions affect the overall structure of each galaxy? (3) what are the similarities and/or differences between the three galaxy structures? The Southeastern Association for Research in Astronomy (SARA) telescopes - SARA-North at Kitt Peak in Arizona and SARA-South at Cerro Tololo in Chile - were utilized for making observations of the galaxies in visible (V), red (R), blue (B), and H-alpha filters. The program Maxlm DL was then used to analyze the data and combine the filtered images to create the final full color image of each galaxy. These final images emphasize the location of massive star-forming regions in the galaxies.

BSC 210E

Quantity of Parvalbumin Interneurons in BLOC-1 Deficient Mice

Authors: Martha Vorder Bruegge, Andrea Sweetman, Nandi Ramirez

Adviser: Professor Jennifer Larimore

Studies have demonstrated that decreased amounts of subunits of the BLOC-1 complex, especially dysbindin and palladin, are associated with Rett Syndrome and Schizophrenia. Rett Syndrome and Schizophrenia are neurodevelopment disorders that are characterized by a decrease in inhibitory signaling. Parvalbumin interneurons contribute to this phenotype. Our research is focused on quantifying the amount of parvalbumin interneurons in regions of the hippocampus. Our microscopy results demonstrate that there was a significant decrease in parvalbumin interneurons in the CA1 region of the hippocampus. In CA3, only the mice lacking dysbindin exhibited a decrease in parvalbumin. In the dentate gyrus mice lacking muted showed a decrease in parvalbumin neurons. Taken together, these data show that there is a relationship between BLOC-1 and parvalbumin interneurons. This research can contribute to further studies that aim to correct parvalbumin counts in regions affected by Rett Syndrome and Schizophrenia.

BSC 304E

The Role of External Actors in Serbsi: Resistance to ICTY's Reconciliation Efforts in Yugoslavia Following the Yugoslav War of the 1990s

Author: Bojana Misljen

Adviser: Professor Eleanor Morris

This presentation examines the successes and failures of reconciliation through retributive justice in Yugoslavia following the 1990s war. It argues that external actors have hindered reconciliation through retributive justice in Yugoslavia because of they have shaped the reconciliation efforts by establishing

the ICTY (The International Criminal Tribunal for the former Yugoslavia). The relationship between the external actors and ICTY have caused the Serbian victims to resist any form of reconciliation sponsored by the ICTY until this institution prosecutes those responsible for alleged crime committed against Serbs. However, this is unlikely to happen because external actors use their sphere of influence to dictate the workings of any international institution, including the ICTY; thus protecting their national interests.

BSC 308

Bollywood Music's Underlying Meaning

Author: Neeraja Panchapakesan

Adviser: Professor Tracey Laird

Music is a staple feature in Bollywood movies that sets it apart in the world of film. The music and dance sequences entertain audiences and contribute to the success of these movies. While seemingly irrelevant to the plot at times, much of this music bears underlying meaning through the use of Western musical characteristics. Differences in instrumentation, orchestration, ornamentation, and mode distinguish Indian and Western music and are used to convey different meanings. For example, sometimes the use of Western musical traits points to the effects of globalization, specifically Westernization of the Indian identity. Other times, those traits are used to portray characters, scenes, or values in a negative light. This research examines the music in *Mohabbatein*, *Kabhi Khushi Kabhie Gham*, and *Lagaan*, specifically looking at the role of Westernized musical traits with particular attention to the portrayal of women in these contexts.

PRESENTATIONS 11:15-11:35

BSC 102W

Students as Learners/Students as Teachers: College Students Learn from Refugee Middle School Students

Authors: Ononuju Ume, Ugonna Ume, Daja Johnson, Toddrika Williams, Chloé Hoses

Adviser: Professor Toby Emert

The session offers a synopsis of an eight-week ethnographic research initiative during which 10 Agnes Scott College students gathered data about the learning experiences of middle school refugee girls from the Global Village Project (GVP) in Decatur. The focus of the research was on digital literacies, and the learning activities asked the GVP students to interact with technology that was unfamiliar to them in order to create short films that translated contemporary poems from written to visual form. The ASC students used data collection methods such as photography, video and voice recordings, student artifacts, and surveys. They also read scholarly articles and other secondary resources to become familiar with the experiences of refugees, as well as kept weekly reflective logs. This presentation outlines the effects of the initiative on the ASC students, highlighting what they learned about themselves from the experience of playing the role of teacher-researchers working with female refugee middle schoolers.

The Role of Religious Institutions in Addressing Homelessness

Author: Juliette Zhu

Adviser: Professor Regine Jackson

Homelessness has been an enduring problem in the United States despite the country's economic resources and various institutions offering assistance to homeless people. The problem is complex, caused by a complicated combination of personal troubles and structural issues. Based on a community service in a homeless church in metropolitan Atlanta, field observation, and a critical review of secondary sources, this study focuses on how religious institutions such as churches offer a chance at rehabilitation and connection to society for homeless people. I found that certain sources of assistance make homeless people feel "normal" temporarily but can hardly help them to re-identify in society permanently. Although the loose connection between religious institutions and the government weakens the functions of religious institutions dealing with homelessness, they have power to reduce the problem because they function at the personal, social, and structural level directly and indirectly. These findings show that religious institutions can play a prominent role in alleviating the issue of homelessness but collaborations with the government are still needed.

Analyzing Traditional Feminine and Masculine Roles within Sally Mann's Photograph of "Jessie and the Deer"

Authors: Molly McDaniel, Lyla Chaudhry, Gabrielle Moore, Marriah Taylor

Adviser: Professor Esther Lee

This presentation examines Sally Mann's photograph "Jessie and the Deer" (1985). Our research draws upon secondary sources such as the documentary *What Remains*, which focuses on the photographer's background. The photograph creates juxtaposition between traditional feminine and masculine roles, thus challenging gender roles of American society. In the photograph, Jessie represents femininity and daintiness in her princess outfit; masculinity is represented through the dead deer, for hunting is traditionally a masculine sport. The contrast of an animal's murder with a young girl's childhood dreams and innocence can be startling to a viewer, but because these two extremes are presented cleanly and openly, the viewer is engaged and looks more deeply at the photograph. Mann's composition and detail then urge the viewer to access a deeper realm of introspection. Sally Mann captured a meaningful picture to represent what we believe to be gender roles within the western society and how this also may potentially be a political statement.

Environmental Stewardship at Agnes Scott College

Author: Meghan Franklin

Adviser: Professor Amy Lovell

Agnes Scott College has become a leader in solar energy implementation through the use of five solar-array projects on campus. This is an extraordinary achievement not only because the college now serves as a role model for environmental stewardship in the surrounding community, but also because Agnes is a living and learning laboratory for students on campus. The purpose of this presentation is to inform the student body about the solar projects on campus and how these projects are important to the future health of the environment. In addition, simulation results of the panels on the observatory rooftop will be presented. Data was collected from the solar array and weather station located on the roof of the Bradley Observatory, solar panel efficiencies were calculated based on incline and direction of the panels, and variations in efficiency during seasonal changes were observed. This work results in an ability to predict when peak efficiency may be achieved.

BSC 210E

Understanding the Role of BLOC-1 in the Regulation of Parvalbumin Interneurons

Authors: Eli Whisnant, Cecilia Garza, Hannah Rudolph

Adviser: Professor Jennifer Larimore

Lack of functional MeCP2 results in Rett Syndrome, a neurodevelopmental disorder classified under the autism spectrum. MeCP2 is a transcriptional regulator that affects expression of BLOC-1, which is a complex that is made up of 8 proteins necessary for intracellular transport. The BLOC-1 subunit dysbidin is down regulated in patients with Schizophrenia. Mouse models of Rett Syndrome and Schizophrenia show changes in excitatory and inhibitory connections within the cortex and hippocampus of the brain, affected in part by GABA positive interneurons. We are testing the hypothesis that lack of BLOC-1 disrupts the GABAergic parvalbumin-positive interneurons. Understanding the role of the BLOC-1 complex will lead to a better understanding of these two neurodevelopmental disorders and allow for further targeted research.

BSC 304E

Quantitative Analysis of Herbicides in a Silica Dioxide Model Soil Matrix

Author: Sarah Carroll

Adviser: Professor Ruth Riter

This is an undergraduate 300-level analytical chemistry lab developed to use ATR-FTIR to establish the lower limit of detection (LLOD) and lower limit of quantitation (LLOQ) for the herbicides metribuzin and trichlorfon incorporated into a crystalline SiO₂ matrix by dissolving in methanol and allowing to dry a minimum of 48 hours before being analyzed with ATR-FTIR spectroscopy. ATR-FTIR analysis was selected due to the speed and simplicity of the procedures when compared to alternative analysis techniques like extraction. Additionally, this lab clearly illustrates some of the more relevant and widespread uses of analytical methods. This is because the ability to detect herbicide and other compounds which are standard in agriculture is central to environmental

preservation efforts. Establishing the LLOD and LLOQ is essential.

BSC 308

Quality Perception of Piano Tones through Harmonic Analysis

Author: Connor Day

Advisers: Professors Tracey Laird and Chris De Pree

Timbre is the quality of music and sound that allows us to distinguish one sound from another. All attributes of a tone affect timbre, including its attack, sustain, and decay. A primary aspect of timbre lies within the harmonic content of a sound, which is defined by the amount and intensity of its upper partials. This research aims to experimentally verify the connection between specific aspects of the overtone series of piano tones and the perception of their timbre. The harmonic spectra of steady tones created by multiple pianos on the campus of Agnes Scott College are computed using fast Fourier transforms (FFTs). This technique breaks down a sound wave into the specific frequencies that sum to create that single wave. Focusing on sustained tones allows the specific determination of their overtones. Characteristics of the harmonic spectra such as secondary partials and inharmonicity are investigated within the data. The information derived from this analysis is used to explain the perceived quality of the sounds of each instrument.

PRESENTATIONS 11:40-12:00

BSC 102W

Panda House Program

Authors: Wanjin He, Biru Tang, Yuqiu Guo, Boxu Fan, Zheng Liang, Xian Tang
Natalie Martinez

Adviser: Professor Shu-chin Wu

After nearly one year living in the Panda House, we think that we have accomplished our original goal, which was to try our best to introduce the most representative aspect of China that our foreign friends may be interested in through our activities, help them learn about China, and inspire them to put their efforts in Asian study. If possible, we also want to make more foreign friends to visit, study in, or even work in and settle down in China. There used to be limited resources for them to get close to it on campus. Through the activities that we provided, however, more and more people at least know something about Chinese tradition festivals, costumes, and even speak a little Chinese. Our residents also learned from the program about how to work as a team, what our responsibilities were, and how to accomplish a meaningful project. Although there were disagreements and conflicts of interest, we handled the problems and remained as a highly efficient group. We believe that the experience in the Panda House will benefit us not only in our abilities but also in the way we make a difference to the entire campus.

She, On the Other Hand: The Crossroads of Feminist Scholarship and Visual Literacy

Author: Taina Brown

Adviser: Professor Kelly Ball

How do feminism and gender studies contribute to the on-going dialogue centered on visual literacies? Within the context of visual literacy, feminist works help draw attention to the political economy and coded meaning of images, showing how representation, misrepresentation, or lack of representation continue to perpetuate common tropes of marginalized groups. By utilizing the theoretical framework of the gaze—and particularly, the male gaze—feminism and gender studies deconstruct the coded meanings found in visual images, thus giving the viewer a more critical and conceptual history in which to place a visual image. Using John Berger’s framework of the nude and the naked, I will also decode images to see how bodies are stripped for spectatorship or for inherent worth. By juxtaposing images of men and women in contemporary publications, I evaluate both the intended spectator and the intended meaning, and thus move toward a more critical observance of how images are used to manipulate audiences, as well as how bodies are represented to market the intended meaning of the image. These analyses help develop a more socially conscious and objective standpoint and a more informed citizen that actively engages with different media, instead of merely participating in spectatorship. Images saturate our world and it is, therefore, imperative that visual literacy scholarship and theoretical frameworks be made accessible to those outside of academia creating a more critical and feminist visual literacy for all.

BSC 112W

Quick Close Dark: poems

Author: Courtney Taylor

Adviser: Professor Esther Lee

Three factors describe the makeup of most shootings involving unarmed victims: they happen quick, within close proximity to the target, and in dark environments. At the root of such violence is an unadulterated fear that overpowers the shooter’s compassion for the life standing at the other end of the barrel. This collection of poetry explores that phenomenon with concentration on racially motivated killings. The poems in this collection focus on the individuals both behind and in front of the trigger. Access to these contrasting voices confuse the dichotomy between good and evil in order to present racism for what it truly is: a complex web that transcends definition and understanding. The poems in this collection are multidimensional; they adopt an unconventional poetic forms, intersecting with performance, visual art, and multimedia, all in an effort to give a new perspective to the age-old tale of the feared Black body and the fearful White America.

Radio Recombination Line (RRL) Profiles in the Flickering Sources of Sgr B2 Main

Author: Ashley Monsrud

Adviser: Professor Chris De Pree

Sgr B2 is one of the most luminous massive star forming (MSF) regions in the Milky Way Galaxy, and host to almost 50 individual regions of ionized gas around high mass stars (HII regions). We have observed Sgr B2 in the continuum and in Radio Recombination Lines (RRLs) at 1.3 cm and 7 mm with the EVLA. Comparisons between continuum observations made in 2012, and archival 1.3 cm data (1989) and 7mm data (1997 and 2003) have shown that a small subset of the HII regions in Sgr B2 have changed in brightness (or “flickered”) over the past 20-25 years. For my senior thesis, I have been working on a new combined data set of 1.3 cm RRLs from the EVLA in all three of its hybrid configurations (DnC, CnB, BnA). I will present an overview of the data reduction and analysis process, and present the early results from this spectral line work. In particular, we have been able to examine the spectral lines that arise from the known “flickering” sources in Sgr B2. From these profiles, we are able to consider whether the detected broad spectral lines are the result of kinematic effects, or pressure broadening.

BSC 210E

#caughtgreenhanded

Authors: Wendy Simmons, Bryn Bassett, Jaylen Jamerson, Jamila Surpris

Adviser: Professor Laura Koller

For this year’s Recyclemania, our group took over the #caughtgreenhanded campaign. We used social media to post reminders, encouragement, and images of Agnes Scott community members participating in waste diversion during the week of March 23-27. Our platforms included the Imascottie Instagram account, Facebook, and Twitter. We then assessed the success of our campaign and looked at what can improve for future campus Recyclemania events.

BSC 304E

Investigation of the Rab-8 and Nfya-1 Genes in Tumors

Authors: Myat Monaye Win, Pam Guinn, Chinenyenwa Okoye

Adviser: Professor Douglas Fantz

Somatic, gain of function mutations in Ras genes, were the first specific genetic alterations identified in human cancers. The Ras signaling pathway is constituted of molecules that have been conserved in different species including *Caenorhabditis elegans*, also known as *C. elegans*, a species of nematode. Ras signaling functions in multiple times and locations in *C. elegans* including the excretory cell, germ cell, male tail, and vulva. Primary, secondary, and tertiary vulva cell fates are initiated through Ras mediated negative regulation of *lin-1*. Abnormal function of Ras signaling can lead to extra primary cell fate divisions causing multi-vulva phenotypes in *C. elegans*, while insufficient signaling causes vulva-less phenotypes. Research conducted in the Fantz lab monitored the function of two genes, *nfya-1* and *rab-8* as regulators of Ras signaling and tumor promotion. The activity of these genes was knocked-down in *C. elegans* by use of RNA interference (RNAi) to determine the role these genes play in Ras-mediated cell division.

PRESENTATIONS 2:00-2:20

BSC 102W

Cathedral as Subject and Space in Modern and Contemporary Art

Author: Hannah Plank

Advisers: Professors Katherine Smith and Donna Sadler

As a condensed version of a larger project, this paper will explore the roles of the cathedral in modern and contemporary art, particularly in the works of Claude Monet and Bill Viola and Kira Perov. It includes works that depict cathedrals as well as works that become part of cathedral environments. Viewing these kinds of works provides insight as to how artists perceive the form and function of cathedrals and the place of their art within them. These works also reveal the evolving role of cathedrals as not only a place for worship, but also a place for display and discourse. Viewing works like these also provides insight into the ways that the cathedral form is perceived by the public at different times. On the whole, this paper endeavors to enter into a discussion about the ways cathedrals are used and understood in modern times. The art to be considered employs cathedrals in some instances as a subject and in other instances as a space or environment for works to exist within. Space is also a theme in works that use the cathedral as a subject matter.

BSC 103W**Memes and Vines: The Effects of Racist Social Media Trends on Young Adults**

Author: Mwoddah Habib

Adviser: Professor Douglas Falen

Social networking sites have attracted popularity among people of all ages, especially young adults, who now frequently express themselves through trends in images and videos on social networking sites. Previous research on online video commentary has found that online anonymity and virtual communities provide a space for users to express their true opinions and feelings, which even include hate speech that contrasts to the more benign content of face-to-face interactions. Studies have mainly observed the involvement and the experiences of young adults on these sites, without adequately examining recent trends and their effects on general users, specifically the young adults. Based on an online survey at Agnes Scott College that yielded 155 responses and 7 interviews, more than 50% of the students believe that racist online trends impact young adults negatively through the reinforcement of negative racial and ethnic stereotypes. This research gives insight to young adults' online activity and explores the emerging social media discourse on racism. Young people at Agnes Scott spend a lot of time online, which increases the possibility of internalizing negative images, and the reaction to these negative images in reality. Social media provides a vehicle for the circulation of racist discourse that conforms to longstanding negative stereotypes that have long been a part of public media, but when this discourse is protected by the cloak of anonymity, it tends to become even more caustic. If unchecked, this phenomenon of racist discourse on social media could heighten the racially charged climate of the United States.

Establishing Agnes Scott's First Academic Journal

Authors: Jeannette Burkle, Xiaofei Xue, Erin Pirkle, Jamie McClure

Adviser: Professor Mina Ivanova

Although undergraduate journals are still uncommon in the United States, previous research shows that the presence of a journal promotes student interest in grad school and other professional publications and also promotes revision of submissions. This study analyzes the potential impact of the launch of an undergraduate interdisciplinary research journal by the Center for Writing and Speaking (CWS) at Agnes Scott College. We assess the ways in which this project will affect the CWS's identity and position on campus with respect to and in consultation with students, faculty, and administrators. In addition, we evaluate the process of establishing an undergraduate journal on a college campus by highlighting the administrative and distributive challenges and interactions with other modes of campus publications. Our data comes from a multi-variable survey and interview. We expect that the establishment of the undergraduate journal will benefit students as a resume builder, expose students to fellow research, help prepare students for grad school, and ultimately raise their comfort in submitting to formal publications.

Comparing Environmental Impact of Different Hamilton Circuits

Author: Rachel Shore

Adviser: Professor Rachel Bayless

MedShare is a medical supply distribution company that aims to bridge the gap between surplus and scarcity by donating America's unused medical supplies to hospitals in developing countries. Procuring these unused medical supplies involves employing a truck driver to collect medical supplies from barrels placed at clinical institutions throughout the San Francisco Bay area, where the company is located. Math students of Agnes Scott College used complex algorithms and graph theory techniques in order to find the most efficient possible routes for the truck driver to take. Implementing these strategically calculated routes will save time, money, and the environment. This presentation will discuss the methods and effects of the optimal solutions to this math problem, particularly the environmental impact that these solutions will have.

Zoo Animal Welfare: Sun Bears, the Visitor Effect, and Environmental Enrichment

Authors: Lora-Beth Allen, Dr. Bonnie Perdue

Adviser: Professor Bonnie Perdue

Behaviors and environmental factors must be monitored for captive animals to ensure that they have the best quality of welfare possible. The sun bears (*Helarctos malayanus*) at Zoo Atlanta can often be seen pacing or performing other abnormal behaviors that raise concerns in visitors and zoo keepers. The number of visitors may be affecting the bears' welfare which can be seen in a statistically higher rate of pacing with the increase in visitors. Additionally, environmental enrichment is a commonly used device to decrease stereotypic behavior to increase animal welfare, but enrichment may not be benefiting

the animals as much as previously conceived. By considering the correlations between behavioral and environmental data, the interaction can be quantified, and a better welfare for the bears can be approached. The observations are taken of two sun bears at Zoo Atlanta.

BSC 304E

Barriers and Facilitators to Enrollment among Latinos in Diabetes Prevention Programs

Author: Karla Umana

Adviser: Professor Amy Patterson

Diabetes, which affects 9.3 % of the American population, and is the 7th leading cause of death in the United States, can be prevented or delayed with appropriate dietary, exercise, and lifestyle modifications. The Diabetes Prevention Program (DPP) encourages participants to achieve a modest weight loss of 5 -7%, reducing the number of diabetes cases by an average of 58% among the general population and 71% in individuals over the age of 60. Latinos currently comprise the most rapidly growing demographic in the United States. The approximately 52 million Latinos residing in the U.S. are disproportionately affected by diabetes mellitus and prediabetes: they are on average 1.9 times more likely to have diabetes than non-Hispanic Whites. The number of Latinos living with type 2 diabetes (diagnosed and undiagnosed) is expected to increase 111%, from 5, 425,500 in 2010 to 11,452,100 by 2025. Latinos have a 50% higher overall mortality rate than their White counterparts; they are less likely to engage in healthy behaviors or have the resources to address complications from the disease. In order to reduce the diabetes epidemic in the Latino population, it is imperative to first understand Latinos' personal and systemic barriers to participation in diabetes prevention programs. This presentation will highlight preliminary findings concerning factors that make it easier and more difficult for Latinos to enroll in the DPP. These cited barriers and factors affecting enrollment in the program are based on participant feedback from focus groups conducted with Latino adults in the metro Atlanta area.

BSC 308

Experimental Techniques to Evaluate the Neurotoxicity of Environmental Chemicals

Author: Camille Pham-Lake

Adviser: Professor Jennifer Larimore

Currently there are over 80,000 chemical contaminants in the environment. Most of these chemicals are present in the environment in the form of pesticides and industrial solvents. Many of these environmental toxicants are known to contribute to the development of an array of neurological diseases. This study focused on flame-retardants, which represent a ubiquitous group of environmental toxicants that have been associated with neurotoxicity. Our evaluation focused on specific flame retardant chemicals, polychlorinated biphenyls (PCBs) and hexabromocyclododecane (HBCD). PCBs, a previously used flame retardant, were introduced into the environment during the 1930s until the late 1970s. Due to their physiochemical characteristics they persist in the environment, continuing human exposure. They have been shown to be a significant contributor to deficits in both cognitive and motor function in epidemiological and laboratory studies. Exposures to PCBs have a high correlation with damages to the dopamine system and incidences of Parkinson's disease. As PCBs have been phased out other flame retardant compounds have been introduced. HBCD exhibits similar physiochemical properties as PCBs and have been found to be neurotoxic. The neurotoxicity of three PCB compounds and HBCD were assessed using several experimental approaches. In sum, we found exposure of SK-N-SH cells as well as primary cultured neurons to PCB compounds severely altered cell viability and other aspects of neuron

morphology. Additionally, exposure of mice to HBCD resulted in significant damage to the dopamine system in the frontal cortex. Our findings demonstrate the neurotoxicity of PCB and HBCD and implicate them in disease etiology.

PRESENTATIONS 2:25-2:45

BSC 102W

Americanism in the American Legion: Demonstrating the Anti-Communist Movement on May Day 1950 in Mosinee, Wisconsin

Author: Amy Pipher

Adviser: Professor Robin Morris

This presentation will examine the historical narratives of McCarthyism and the anti-communist movement in the United States by exploring the role of the American Legion, the largest veterans' organization in the world, as an anti-communist actor. Widely cited as an important player in the U.S. conservative movement historically, the American Legion has rarely been the main topic of historiography. Breaking that trend, this presentation will explore the local, state, and national auspices of the American Legion and their involvement in the May 1, 1950 staged pageant that took over the town of Mosinee, Wisconsin for 14 hours under Communistic rule and gained widespread, international attention. By exploring the creation of the American Legion and their continued focus on promoting "Americanism" in the United States, it becomes clear that the American Legion had the reach and reputation that allowed them to make their May Day event one of the most discussed examples of anti-communist pageantry in American history.

BSC 103W

A Black Mecca? Race, Politics and Place in Atlanta's West End Neighborhood

Author: Brittany Jackson

Adviser: Professor Regine Jackson

The central focus of my independent research project is the West End neighborhood of Atlanta. Specifically, I am interested in the economic, social, political and racial factors that contributed to the decline of the West End between the late 1960's and the early 2000's. Based on archival and secondary sources, my goal is to better understand the residential trends of the people who have lived there, and the political and economic factors that impact a neighborhood such as the West End. My research also includes photographs of the West End neighborhood that allow me to compare the physical space as it is today with archival photographs. In addition I hope to identify the major investors and political figures from the West End, who may have contributed to its growth and decline. My end product will be a digital exhibit, consisting of roughly 1,500 words (6 pages) of text summarizing my research, complete with pictures, hyperlinks, etc. This case study promises to shed light on the factors that contribute to the changing landscape of a city over time.

Looking Above and Around Chile (2:25-2:55)

Authors: Samantha Chiang, Estephania Hernandez, Allison Hunter,
Tanvi Mehta, Jacquelyn Zbranek

Advisers: Professors Amy Lovell and Michael Schlig

Chile offers some of the best physical conditions on Earth for astronomical observations and has attracted international development of observatories and scientific research. At the same time, the Chilean people have confronted social, political and economic changes, made more challenging by extremes of geography, including the highest and driest desert on the planet. Students who traveled to Chile in January 2015 offer excerpts from their reflections on this Global Awareness experience.

Game Theory and Mathematics

Author: Chenghuiyun Xu

Adviser: Professor Rachel Bayless

Decisions are made every day on a variety of scales that range from simple bargaining agreements to large diplomatic policies. Usually, we just follow our instincts to determine what to do next, but things are not always as simple as they seem. What if there exists some “magic” which will lead us to the optimal choice every time? Mathematics, of course, has the power! Actually winning-strategies can always, at least partially, be found while solving problems. In this presentation, we simplify real-life problems into different types of models (games), find their rules and use mathematics to solve them. In particular, we will explain some of the most historically significant and interesting games. We will present how the magic of math can make a player always win.

Will Monkeys Choose to Keep their Options Open?

Authors: Ella Brown, Dr. Bonnie Perdue

Adviser: Professor Bonnie Perdue

Various cognitive studies have attempted to understand non-human primate choice and risk-taking behavior, looking for similarities with humans. While doing so, research has also provided important enrichment for primates in captivity, giving them mental stimulation that can help improve their overall wellbeing. In this study, we presented two groups of laboratory monkeys, capuchins (*Cebus appela*) and rhesus macaques (*Macaca mulatta*), with a computerized task in order to assess their risk-taking and choice-making behaviors. Each monkey was presented with two differently colored squares. When the monkey chose a square by clicking on it, differing numbers of food pellets were dispensed, making each square correspond to a certain level of risk. Risk preference was tested when options were constant (both squares remained the same size), and again as options were diminishing (one square shrunk whenever the other was chosen, only to be restored by clicking on it). Initial results indicate that the capuchins shifted their risk preferences in the

diminishing options phase, choosing to click on both squares in order to keep them from shrinking, keeping both options open. This same effect has been found in humans, who irrationally tend to desire choice simply for the sake of having choice. This study, therefore, indicates that capuchins, just like humans, prefer to have choice, and will therefore choose to keep their options open.

BSC 304E

Reducing Suicide Rates on College Campuses by Promoting Positive Self Imaging

Authors: Chynna Golding, Samantha Giordano, Ijaaz Kingston,
Rocio Ochoa; Nicole Ruffin

Adviser: Professor Laura Koller

The intent of this study is to reduce the rates of suicide amongst youth and adolescents by encouraging them to create a positive image for themselves and about others through empowerment and an interactive "Kiss Wall." We hypothesized that negative self-imaging plays a significant role in depression and anxiety that could potentially lead to a suicide attempt. The campaign's objective is to encourage people to find positive attributes about themselves and through this we hope to reduce rates of depression and ultimately reduce suicide attempts on college campuses. We predict that through instilling a positive self-image in college students suicide attempt rates will experience a decrease. For this campaign the sample was taken from Agnes Scott College, however we hope to expand the campaign to other campuses in order to obtain a more diverse data set.

BSC 308

The Effect of Arl13b Deletion on Postnatal Cerebellar Development

Author: Ashley Ealey

Adviser: Professor Jennifer Larimore

Our lab studies Arl13b, a small GTPase that is found in the primary cilium of cells and regulates Sonic hedgehog (Shh) signaling. Shh signaling is dependent on primary cilia for the development of the cerebellum because it directs proliferation of granule neuron precursor cells, Purkinje cells that secrete Shh for cell division regulation. Mutations in Arl13b are linked to the human ciliopathy Joubert Syndrome, a symptom of which is a small cerebellum. At embryonic stages of development, Arl13b is essential for normal cerebellar growth. Deletion of Arl13b early in development alters Shh signaling, compromising cerebellar morphogenesis, and resulting in a small or absent cerebellum. In contrast, overactive Shh signaling during cerebellar development can cause tumors called medulloblastomas. We hypothesize that Arl13b could also play a role in postnatal cerebellar development due to its pivotal role in cerebellar development and could be used as a target treatment for medulloblastoma patients. We deleted Arl13b in granule neuron precursor cells of four-day-old mice. We compared brain tissue from control and experimental animals and looked for expression of Arl13b in the external granular layer using immunofluorescence and PCR. We also observed gross morphology of the cerebellum using hematoxylin and eosin staining and immunofluorescence. Our findings allow us to conclude that deletion of Arl13b at P4 does not appear to have a gross impact on postnatal cerebellar development, morphologically and behaviorally.

PRESENTATIONS 2:50-3:10

BSC 102W

Pro-Kurdish Parties and the PKK in Turkey: The Myth of Monolithic Kurdish Identity

Author: Cheryl Wollner

Adviser: Professor Mary Cain

Kurds have participated in Turkish politics as politicians and parliamentarians since the founding of the Turkish Republic in 1923, but pro-Kurdish political parties emerged in 1990. Currently, Kurds in Turkey only have full citizenship rights if they claim to be Turkish by ethnicity, denying their Kurdish heritage. Since 1990, the Constitutional Court has closed at least five major pro-Kurdish parties for being mouthpieces for the illegal guerilla organization the Kurdistan Workers' Party (PKK in Kurdish). The PKK dominates the Kurdish issue. This presentation examines the support for pro-Kurdish parties and their relationship with the PKK. The PKK provides pro-Kurdish parties a continuous support base, and scholarly sources view votes for pro-Kurdish parties as votes for the PKK. This presentation argues that pro-Kurdish parties and the PKK legitimize each other, furthering the myth that there is one voice for the Kurds in Turkey and it is the PKK, speaking through the pro-Kurdish parties.

BSC 103W**Classical vs. Pop Music: How Musical Experiences Shape Musical Preferences**

Author: Mingming Cui

Adviser: Professor Douglas Falen

While a number of factors affect people's musical preferences, this presentation specifically explores the influence of music education and training, and the functions carried by different music genres on the musical preferences of Agnes Scott College students. Ginocchhio (2014) claimed that music education in a particular genre positively affects musical preferences while Mito (2004) stated that it causes resistance and irritability. For this research, music genres are categorized as classical (i.e. opera, instrumental) and non-classical (i.e. rock, pop, rap/hip-hop), and music education is divided into formal and informal types. Data from 167 survey responses and 11 interviews show that the most preferred genre is Pop, following by Rock music even though more than 75% of respondents have been musically trained in the classical style. White participants tend to prefer Rock while Rap and Hip-hop are most popular among African Americans. Thus, students taking music lessons are not studying their preferred genre, and many respondents find that the applied music is very expensive. Furthermore, students of lower socioeconomic means are less likely to study music. The Agnes Scott College Music Department could benefit from this research by considering adding Rock and Rap/Hip-hop lessons to the curriculum and by increasing financial aid to attract a more diverse group of students.

Perceived Luck and Memory Task Performance

Authors: Jeannette Burkle, Nicole Caldwell, Hayley Dickson, Brianna Vannoy, Xi Zhang, Dr. Barbara Blatchley

Adviser: Professor Barbara Blatchley

Previous research has indicated that belief in luck has significant effects on performance in various tasks. Luck is directly connected to one's feelings of self-efficacy, optimism, and their locus of control. The belief in unluckiness has not been well tested. For our study we gathered participants and had them play a card matching game. One group of participants was told their deck was lucky, one group was told their deck was unlucky, and a third group was not told anything. This influenced participants to believe their card deck was lucky or unlucky. This study seeks to find how the manipulation of a subject's belief in good or bad luck affects their performance on a cognitive memory task. We hypothesize the perception of good luck will positively influence task performance and the perception of bad luck will negatively influence task performance. Our results may reflect the negative influence of bad luck due to reduced feelings of self-efficacy.

An analysis of a *Neisseria meningitidis* Vaccine Antigen and the Validation of Real-Time PCR for the Detection of Bacterial Meningitis Pathogens

Author: Samantha Thomas

Adviser: Professor Tim Finco

Meningitis is an inflammation of the meninges, which is the membranes covering the brain and spinal cord. This paper discusses two separate projects concerning the prevention and detection of bacterial meningitis pathogens. Beginning with project 1: To predict the coverage of a potential vaccine against serogroup B, genetic diversity and prevalence of the factor H binding protein (FHbp) antigen among US isolates collected through Active Bacterial Core surveillance (ABCs) were determined through DNA sequencing methods. The results indicated that about 60% of isolates contain a FHbp of subfamily B and 40% of isolates contains a FHbp of subfamily A. The distribution of FHbp changed over time with common FHpb variants detected in the US every year. Therefore it can be stated that a vaccine containing both FHbp subfamilies, A and B may provide a wide range of coverage against *N. meningitidis* B disease.

Project 2 involves the validation of the *ctrA* and *hpd* assays using direct rt-PCR method. To determine the optimal concentration of primers and probes used in direct rt- PCR method, the two assays were performed on Cerebrospinal Fluid Specimen and tested a range of primer and probe combinations. After examination, it was found that both assays showed similarities of Ct values and amplification plots, in addition to similar sensitivity and specificity. Based on these results it was concluded that direct rt-PCR can be used in the laboratories for the detection of meningitis pathogens in place of traditional method.

Function and Significance of C/EBP β in Malignant Gliomas

Author: Ligia Selagea

Adviser: Professor Jennifer Larimore

Glioblastoma multiforme (GBM) is the most common and most aggressive primary brain tumor. Despite advances in cancer therapeutics, the prognosis for GBM is still dismal, with less than 5% of patients surviving past the second year. CCAAT/enhancer-binding protein beta (C/EBP β) is a bZIP transcription factor that has been shown to regulate numerous genes involved in immune and inflammatory response, and has recently been determined to be a master transcriptional regulator, driving the most aggressive molecular phenotype of GBM. The aim of this research is to uncover the function and significance of C/EBP β isoforms in glioma biology.

PRESENTATIONS 3:40-4:00

BSC 102W

Racial Discrimination in the Fashion Industry

Author: Taylor Williams

Adviser: Professor Julia Knowlton

When you look at the catwalk, what do you see? There are few models of color in the fashion world. Fashion is a global phenomenon, but it is limited to the people that are included in this industry. This presentation examines the limited diversity in the fashion world and the reasons behind the biased viewing of models on the runway. The fashion industry is one of the most creative and inventive industries, but it is incredibly flawed. The fashion industry has narrowed the standard of beauty into this set definition of skinny, white, blond, and only a small percentage of people can reach it. The little diversity does not just have a lasting on the people of color that participate in the fashion industry; it has a lasting effect on the entire culture of people of color. When women of color look at the runway or in magazines and see that no one looks like them, they are going to wonder why women of color are not featured. Beauty and fashion are beyond the color of skin. If the discussion of diversity cannot be held publicly, then there is something wrong with the industry. The fashion industry is supposed to be a colorful industry, and right now looks really colorless.

BSC 103W

Jerusalem to Jericho in the Small Country Church

Author: Brittany Tolbert

Adviser: Professor Douglas Falen

This presentation explores factors relating to the religiosity, education level, and participation in social activism within the context of a small country church in rural Tennessee. The church is located in a largely homogeneous area with a very low socioeconomic status. Previous scholarship has identified a strong correlation between the amount of education received and participation in social activism campaigns. Other scholars have attempted to link religiosity and

participation in religious services with social activism. However, thus far, scholars have predominately conducted their research in academic settings rather than in the church setting. Based on interviews, survey data, and a focus group with the participants of this congregation, my research shows a correlation between religiosity, amount of education received, and participation in social activism. These findings will be used to inform a grant proposal for the church surveyed by showing the high levels of volunteerism experienced in this congregation.

BSC 112W

Summit Travel Pilot: New York City (3:40-4:10)

Authors: Zoe Howard, Huda Khwaja, Mariama Konneh, Gabrielle Young

Adviser: Professor David Thompson

Students participating in the pilot program for Summit first-year travel discuss their experiences in New York. While the session will illuminate the themes of global learning and leadership skills, topics will include everything from the details of travel arrangements to the bright lights of Broadway and all of the food, art, culture, and personalities in between.

BSC 209W

Applying Mathematical Theories to Real World Problems

Authors: Kimberly Luong, Bi Ru Tang, Kristina Evans, Kayleigh McCrary,
Victoria Wood, Ashley Monsrud

Adviser: Professor Rachel Bayless

The real world presents many logistical challenges with many different objectives, and more often than not, these challenges have no one solution. A classic graph theory problem often framed as one traveling salesperson with different destinations (so they may sell their goods) wants to find the route that will save them the most time and money. The simplest constraint would be to find the route with the smallest overall distance. However, real world companies with similar objectives often face the issues of having more objectives than minimizing distance. In rush hour traffic, is this shortest route also the fastest route? Similar questions start to make the classic Traveling Salesperson Problem (TSP) more and more complex, and these problems typically have no optimal solution, but can be solved for an efficient solution. MedShare is an environmentally-conscious, Non-Profit Organization that reclaims surplus medical supplies to donate to developing countries with qualified, but undersupplied healthcare facilities. They obtain their donations on a weekly basis, visiting donor facilities all over Georgia during peak rush hour times with one truck. MedShare's donation routing problem is not so different from the classic TSP. Using data supplied by MedShare, we applied basic graph theory algorithms to help make their routes more efficient.

Psychometric Properties of the Interpersonal Relationships Anxiety Questionnaire

Authors: Nastacia Pereira, Dr. Carrie Brown

Adviser: Professor Carrie Brown

The purpose of this study was to investigate the psychometric properties of the Interpersonal Relationships Anxiety Questionnaire, or IRAQ (Rohner Research Publications, 2013). The participants were 143 adults (Mage = 29.62, SD = 10.21; 86.4% female). To investigate the psychometric properties of the IRAQ, we examined internal consistency and convergent validity. To examine internal consistency, we conducted a Cronbach's alpha, which revealed an alpha value of .92, demonstrating strong internal consistency for the IRAQ. To examine convergent validity, we correlated the IRAQ with the subscales of the Adult Parental Acceptance-Rejection Questionnaire: Father (Short Form; Rohner & Khaleque, 2005) and the Adult Parental-Acceptance Rejection Questionnaire: Mother (Short Form; Rohner & Khaleque, 2005). The results revealed that the IRAQ correlated with all subscales: paternal coldness ($r(149) = .18, p = .032$), paternal hostility/aggression ($r(149) = .24, p = .003$), paternal indifference/neglect ($r(149) = .24, p = .003$), paternal undifferentiated rejection ($r(149) = .23, p = .004$), maternal coldness ($r(151) = .28, p = .001$), maternal hostility/aggression ($r(151) = .29, p = .000$), maternal indifference/neglect ($r(151) = .26, p = .002$), and maternal undifferentiated rejection ($r(151) = .33, p = .000$). The results of this study demonstrate that the IRAQ has strong internal consistency and strong convergent validity. Therefore, we conclude that the IRAQ is appropriate for the measurement of anxiety within interpersonal relationships.

Implementing the Medical Model with Cognitive and Behavioral Therapy (CBT) for Heroin Addicts

Author: Amanda Fitzgibbons

Adviser: Professor Rachel Hall-Clifford

The 12-Step faith-based abstinence recovery program also known as AA or NA is the primary program used in addiction rehabilitation facilities across the United States. Most facilities that implement this program see a drop-out rate of 40% and a relapse of 50% or so within the first year of recovery. Heroin use has seen a reported increase of 265,000 people using in the US from 2002 to 2012 (Substance Abuse and Mental Health Services Administration). In the rehabilitation facilities a strict abstinence only program is implemented barring recovering addicts from using Methadone, a common drug used to treat heroin addict to help curb their addiction. However methadone has to be prescribed by doctor or psychiatrists and methadone clinics and the doctors who prescribe them have long waiting lists. Implementing the medical model for recovering drug addicts instead of abstinence only allows drug users to wean themselves off slowly from opiate cravings by taking Methadone or other effective drugs like Suboxone and Buprenorphine instead of relapsing.

This research project seeks to understand the effectiveness of the medical model with CBT in treating heroin addiction in the US. Focusing on cognitive and behavioral change therapy instead of intervention techniques that employ confrontation and coercion that's used for NA have been proven to be more effective and emotional stabilizing for users as well as using FDA approved medication to help curb withdrawal symptoms and cravings. Our population would be younger users (18-35) in the Northern Kentucky region in rehabilitation facilities that have indicated in a self-reported questionnaire that they would like different treatment besides the 12-Step program. Recovering drug users have limited options available to them for rehabilitation.

The Role of Dopamine in Regulating Communication between the Basolateral Amygdala and the Medial Prefrontal Cortex During Fear Conditioning

Author: Jamila Pitts

Adviser: Professor Jennifer Larimore

Glioblastoma multiforme (GBM) is the most common and the most aggressive primary brain tumor. Despite advances in cancer therapeutics, the prognosis for GBM is still dismal, with less than 5% of patients surviving past the second year. CCAAT/enhancer-binding protein beta (C/EBP β) is a bZIP transcription factor that has been shown to regulate numerous genes involved in immune and inflammatory response, and has recently been determined to be a master transcriptional regulator, driving the mesenchymal phenotype of GBM. The most common genetic alterations observed in GBM are in the following genes: Epidermal Growth Factor Receptor (*EGFR*), Phosphatase and Tensin Homolog (*PTEN*) and Tumor Protein 53 (*p53*). CCAAT/enhancer-binding protein beta (C/EBP β) is a bZIP transcription factor that has been shown to regulate numerous genes involved in immune and inflammatory response, and has recently been determined to be a master transcriptional regulator, driving the mesenchymal phenotype of GBM. Utilizing established GBM cell lines, we determined the effect of these alterations on C/EBP β gene expression levels using The Cancer Genome Atlas (TCGA) data, mRNA levels using qRT-PCR, protein levels and post-translational modifications using Western Blotting and immunofluorescence, as well as DNA binding capacity using Electrophoretic mobility shift assay (EMSA). The results indicate that the EGFR signaling pathway is an important modulator of C/EBP β function, and suggests that through this pathway the proliferative and invasive capability of GBMs may be sustained.

PRESENTATIONS 4:05-4:25

BSC 102W

East African Exodus

Author: Amen Bedassa

Adviser: Professor Julia Knowlton

The presentation examines the illegal migration of Eritrean youth out of the country to different parts of the world, including different countries in Europe and to Israel. It argues poor and unstable political conditions as well as indefinite and compulsory military conscription and national service as being the primary causes of the exodus. It seeks to answer the question of what must be taking place in Eritrea that one would risk human traffickers on route to freedom than staying in one's country. The presentation will also discuss changes in policies of different host countries and the increasing hostilities towards immigrants as well as Eritrean's stained relationship with the West.

Study Abroad Experiences and their Influence on Post-Graduate Plans

Author: Mahider Mekonnen

Adviser: Professor Douglas Falen

My presentation focuses on the effect of study abroad experiences on Agnes Scott College students' post-college career plans. The literature on this subject suggests that study abroad benefits participants in developing "social capital", language proficiency, and cross-cultural skills. However, there is limited data that explores the relationship between study abroad and a student's commitment to seek employment overseas. Based on interviews investigating why students study abroad and what they gain from it, my research has found that student benefits are consistent with the literature. Moreover, students' international experiences lead them to seek further work and study in international settings, and to develop new personal interests. These findings are significant to the Office of International Education to help them understand the impact of study abroad on students' academic and post-college career plans. In addition, these findings might encourage the establishment of a program for returned students to engage in dialogues about these matters once they have returned.

Order Bounded Group Valuations

Author: Albertha Sabree

Adviser: Professor Alan Koch

Let G be a finite group of matrices. For any prime p , a p -adic order bounded group valuation (obgv) is a map $G \rightarrow \mathbb{Z} \cup \{\infty\}$ satisfying certain axioms. obgv's on G are a useful tool for constructing Hopf algebras inside of the group ring KG , where K is a field. With the exception of a few simple cases, very little is known about obgv's in the case where G is non-abelian. For certain choices of p we will construct all obgv's for 2×2 matrices of integers mod q .

Intellectual Self-care, Education, Happiness, and Life Satisfaction Among Employed Individuals

Author: Meiqing Xiong

Adviser: Professor Jennifer Hughes

Intellectual self-care is one of the domains under self-care that involves activities engaging in critical and creative thinking, expanding current knowledge, and stimulating the mind (Worell & Goodheart, 2005). This concept is seldom defined and investigated through research, thus, the purpose of this study was to garner an understanding of intellectual self-care among employed individuals in relation to other variables like education, happiness, and life satisfaction. With the help from 12 research assistants with recruiting participants through email and social media, the study included 165 employed men and employed 498 women (7 participants had missing data on biological sex) living in the United States. The survey was completed online via SurveyMonkey. Pearson correlations and one-way ANOVAs with post hoc tests were used for testing the five hypotheses. The results revealed that the

importance that individuals associate with intellectual self-care and their actual engagement in intellectual self-care activities were significantly correlated. The second hypothesis was not supported, which suggests higher educational background was not significantly correlated with engagement in more intellectual self-care. The third hypothesis was confirmed; employed individuals with higher levels of education needed greater intellectual self-care. The last two hypotheses were substantiated by our data, and they supported the positive correlation between intellectual self-care and happiness, as well as life satisfaction. This study suggested the possible benefit of informing employed people of the importance of intellectual self-care, implied the intellectual values in higher education, and provided insights on engaging in more intellectual self-care activities to improve personal well-being.

BSC 304E

Minimizing the Spread of HIV: Preexposure Prophylaxis

Author: Brianna Vannoy

Adviser: Professor Amy Patterson

HIV/AIDS prevention and control is essential among young adults especially within the MSM (men who have sex with men) population. HIV is a large public health concern which is estimated to include over 1.1 million Americans today. The World Health Organization has deemed this an epidemic with approximately 36 million people living with HIV in 2012. In order to deter the further spread and incidence of HIV, studies have been conducted that show promise in preexposure prophylaxis (PrEP). Preexposure prophylaxis allows for HIV negative people to engage in sexual activity with HIV positive or unknown status partners. This past summer, I acquired a greater understanding about the MSM population through participating in an HIV-prevention internship. I was able to learn about HIV and its impact on the MSM population because MSM's are the focus of the GA Department of Public Health's prevention campaign this year. This population has been described as having overall riskier behaviors and after interviewing persons who identify as MSM, my interest was sparked, namely in the research area of PrEP. My presentation will explore ways to educate this population about preexposure prophylaxis and how to advocate increased usage of PrEP. I will discuss the theory of planned behavior to further investigate the existing beliefs among MSM's as it relates to PrEP. As addressed in my research proposal, prevention and control measures will also be discussed as a means of influencing MSM's behavioral intentions in a positive way.

POSTERS AND EXHIBITS

Pharmacology of Neurons Controlling Insect Behavior

Authors: Ore Adekunle, Dr. Karen Thompson

Adviser: Professor Karen Thompson

Central pattern generators are neural networks that can produce rhythmic motor patterns independently of rhythmic sensory or central input. This characterization was first observed in the locust nervous system which produces rhythmic output that resembles flight. The current project looks at the oviposition central pattern generator. The purpose of the ovipositor in grasshoppers is to facilitate the laying of eggs. This structure allows for the female grasshopper to burrow into the ground several inches and deposit eggs. The central pattern generator can be turned on by cutting the nerve cord. The addition of the drug histamine inhibited elicited central pattern generator activity. After the histamine was removed motor pattern activity returned. The addition of histamine antagonists such as ranitidine and gallamine should produce effects opposite to those of histamine. This research seeks to determine the effects of the inhibitory neurotransmitters histamine and also GABA, and of their antagonists on the activation of the oviposition central pattern generator.

Pet Owners' Emotional Support, Well-being, Mental Health and Attachment

Author: Chanice Alexander

Adviser: Professor Jennifer Hughes

The goal of this study was to determine the effects of pet ownership on several aspects of well-being. We investigated whether pet owners who seek and receive emotional support would indicate having increased well-being and attachment to their pets. We hypothesized that pet owners who seek and receive emotional support from their pets will report greater pet attachment, greater physical well-being, greater social well-being, and greater mental health. We recruited 663 participants ages 18 years and older. Participants were recruited using email and social media, and were asked to take an online survey using SurveyMonkey. We found that seeking and receiving emotional support from pets was associated with pet attachment, but not physical well-being. Pet owners that seek emotional support from their pets reported greater social well-being, but not greater mental health. This study was important to conduct as 62% of American households include at least one pet (Humane Society of the United States, 2014). The takeaway from this study is pet owners and their animal companions have a mutually beneficial relationship, and that pets can influence pet owners' social and relational well-being.

Investigating Job Satisfaction with Work Hours, Workloads, and Work Stress

Author: Daquanna Alexander

Adviser: Professor Jennifer Hughes

Reports estimate that 4 million are unemployed and those who remain employed are under increased pressure to complete more work (Censky, 2011). Because of the shift in the economy and its impact on employed individuals it is important to investigate the relationships between job satisfaction and work hours, workloads, and work stress. There were 670 participants in the study who completed the Daily Habits and Beliefs survey that included measures such as job satisfaction, work hours, workloads, and work stress. The survey took about 15-20 minutes to complete. Demographic information was also included in the survey. Participation in the survey was voluntary; however those who agreed to participate were entered in a drawing where they could possibly win one of six \$50 Amazon gift cards. We found that the relationship between job satisfaction, work hours and workload were not statistically significant. However, the relationship between job satisfaction and work stress, including stressful work tasks and stressful work environments was statistically significant. The results have implications for employers about improving work environments in order to increase job satisfaction among employees. Employers could also use this information to create an outlet for stressful work task.

Redesigning a Table Using Engineering Psychology

Authors: Melissa Barnes, Julia Chowdhury, Keyona Hicks, Justine Maisonneuve, Box Fan

Adviser: Professor Laura Schaeffer

Engineering psychology takes the methods and data from experimental psychology, the understanding of human capabilities and limitations and applies it to the design of technology and environments (Schaeffer, 2014). The purpose of this project is to introduce how engineering psychology is used specifically in the redesign of a table used in classrooms. Using principles and methodologies derived from ergonomics, human factors, and user-centered experience the everyday classroom table is re-designed to better meet the needs of the students who use them by improving efficiency, safety, and user satisfaction.

Lucky Me: Belief in Luck and Coping Skill

Authors: Dr. Barbara Blatchley, Hayley Dixon, Brianna Vannoy, Xi Zhang, Nicole Caldwell, Jeannette Burkle

Adviser: Professor Barbara Blatchley

In the present study, 35 ASC undergraduates volunteered to participate in a study of the role of belief in luck on stress and coping. Belief in luck was assessed using the Belief in Luck and Luckiness Scale (BILLS—Thompson and Prendergast, 2013). The amount of perceived stress and worry experienced by participants was measured using the Penn State Worry Questionnaire (PSWQ) and the Perceived Stress Scale (PSS). Participants also completed the Desire for Control Scale (DCS) which measures the participants' need for control over events in their personal environment. Two physiological measures of ability

to adapt to stress were also collected. A five-minute EKG recording was obtained to measure heart rate variability (HRV), a marker of both mental and physical well-being (Kemp and Quintana, 2013). Participants also provided a small sample of saliva which was analyzed for cortisol levels, a marker for psychological and physical stress levels, using Enzyme-Linked Immunoassay (ELISA). Belief in personal luckiness was positively correlated with high HRV (indicating psychological flexibility and enhanced self-regulation) and negatively correlated with scores on the PSS and PSWQ. The more strongly luckiness was seen to be a personal characteristic, the less worried and stressed participants were, and the better their control over attention and focus they had.

Career Interests of Incoming Agnes Scott Cohorts from 2000-2009

Authors: Lizzie Booher, Dr. Gail Bell

Adviser: Professor Gail Bell

The student's sense of connection between coursework and her eventual place in the world is a significant factor in college retention (McCalla-Wriggins, 2009). Career assessment instruments are most often offered to college students confused over major choice or because an intended major is not working out academically. Such assessments yield a wide array of results to guide data-based conversations with major-seeking/changing students. A decade-long project in Career Planning at Agnes Scott College sought to determine whether systematically offering career assessment to all incoming students would lead to increased persistence as measured by graduation rates over the years 2000-2009 (classes of 2004-2013). Fifty five % of incoming students (first five years) and of early sophomores (second five years) participated in the assessment yielding data from 1252 students on prevalence and changes in interests of ASC students as measured by the Strong Interest Inventory (Donnay, 1997). Preliminary retention results will be presented for three cohorts of students.

Evaluating the Welfare of Two Primate Species Based on Grooming Behavior

Authors: Ella Brown, Sumbul Siddiqui, Dr. Bonnie Perdue

Adviser: Professor Bonnie Perdue

Animal welfare is an important issue that all zoos must consider to keep their animals healthy both physically and mentally. When housing more than one species in the same enclosure, it is important consider their compatibility in order to ensure their mutual welfare. The current study assessed the welfare status of a group of two drill monkeys and two wolf's guenons in a mixed-species exhibit at Zoo Atlanta in Atlanta, Georgia. To do this, researchers observed social grooming behavior in relation to interspecies proximity. Data was taken in 30-minute sessions over the course of six weeks. The researchers recorded instantaneous and all-occurrence behaviors as well as species proximity via which "zone" and which level (ground or arboreal) each monkey was in. Analysis of the data revealed no correlation between interspecies proximity and grooming behavior, meaning that the primates of the same species continued to groom each other while the other species was near. These findings indicate the compatibility and good welfare of these two species in captivity, offering an example of a successful mixed-species exhibit.

Ground Hornbills' Reaction to the Presence of Children

Authors: Jessica Cahill, Julia Chowdhury, Dr. Bonnie Perdue

Adviser: Professor Bonnie Perdue

Southern ground hornbills (*Bucorvus leadbeteri*) are highly intelligent birds that originate from South Africa. They are considered to be in a vulnerable conservation status and are housed in zoos for conservation and education purposes. Zoo Atlanta houses one male and one female ground hornbill. Researchers focused on Gumby, the male Hornbill, because the female was not visible during our research periods. The male subject was observed over a six-week period in the Fall of 2014. His behavior was recorded on a data sheet using instantaneous and all-occurrence sampling methods and analyzed by researchers using SPSS and Microsoft Word Excel. Anecdotally, these birds have been observed to be highly interactive with visitors near their exhibits and our goal was to further assess this interaction. Since some studies have found visitor interactions to be stressful, we were interested in whether these interactions appeared to have any negative impact on the welfare of the birds. Because the ground hornbills have an exhibit close to the children's play area, researchers were interested in looking for signs of preference or aversion towards children. Observations were recorded systematically and the data was analyzed. There was a statistically significant positive correlation between the number of interactions initiated by the children and by Gumby, $r(27) = .996$, $p < .001$, indicating that the more children interact with the subject, the more he interacted with them. These findings suggest that welfare is not compromised by the proximity to children for this individual.

The Effects of Color Stimuli on Southern Ground Hornbills

Authors: Julia Chowdhury, Jessica Cahill, Dr. Bonnie Perdue

Adviser: Professor Bonnie Perdue

It is important to study the welfare of animals in zoos that are housed for conservation and education purposes. Southern ground hornbills are anecdotally known to demonstrate high levels of social intelligence. One form of social behavior, object-directed behavior, is not well understood. Object-directed behavior was defined as the hornbill's display of objects from the enclosure. The subject would pick up an array of sticks and wood chips in his beak, and show them to the visitors of the enclosure (children and adults). This "showing off" behavior may be an indicator of positive stimulation and thus good welfare. Since little research has been conducted on the effects of the coloration of these objects, the following hypothesis was developed: Colored stimuli, involving the primary colors of red, blue, and green, presented to the birds by the visitors of the exhibit, will increase the object-directed behavior of southern ground hornbills. One male southern ground hornbill, Gumby, was observed in his enclosure at Zoo Atlanta over a period of six consecutive weeks for about 60 minutes per session. A Pearson correlation was conducted to determine the relationship between crowd presence and object directed behavior for children and adults separately, as well as between color stimuli and object directed behavior. No significant correlation was found between the presence of color stimuli and object directed behavior. A strong negative correlation was found between other behavior and object directed behavior, implying that further research must be conducted to better understand hornbill welfare.

Bi-Metallic Nanocrystals and Their Optical Properties

Author: Nnenna Dieke

Adviser: Professor Ruth Riter

This research project focuses on studying the properties of silver (Ag) nanocubes and creating silver-palladium (Ag-Pd) bimetallic nanocrystals with enhanced physical properties. Ag nanocubes exhibit good Surface-Enhanced Raman Scattering (SERS) properties but show limited catalytic activities towards chemical reactions. On the other hand, Pd is regarded as an important catalyst for many industrial applications, but its SERS performance is poor. In order to combine SERS and catalytic properties into a single nanostructure, we deposited palladium atoms onto the corners or surfaces of the Ag nanocubes to generate Ag-Pd bimetallic nanostructures with different morphologies. By titrating Na₂PdCl₄ into growth solution composed of Ag nanocubes, PVP and ascorbic acid (AA), Ag-Pd core-frame nanostructures were obtained. We also synthesized Ag-Pd hollow nanoboxes through etching the Ag-Pd bimetallic structures by H₂O₂. These hollow nanostructures are more stable than Ag nanocubes, making them ideal for SERS and the enlarged surface area should also increase their catalytic activities.

Malinowski Returns to College

Authors: Hayley Dixon, Dr. Barbara Blatchley, Brianna Vannoy, Xi Zhang, Nicole Caldwell, Jeannette Burkle

Adviser: Professor Barbara Blatchley

In Jeffrey Rudski and Ashleigh Edwards' 2007 research about factors influencing college students' use of rituals and superstition, authors found that students reported frequent use of rituals in academic, artistic, and athletic performances. Importantly, they also discuss their results in terms of students' illusion of control provided by the use of rituals. The present study seeks to expand upon Rudski and Edwards' findings and determine if students are still using rituals and charms on educational performances in an online questionnaire about luck and academic performance. We anticipate that use of rituals and charms will be ongoing but that the specific character of the rituals and charms may have changed due to the influence of region and time.

The Effects of Role Overload on Sleep, Eating, and Physical Health Self-care

Authors: Shakirah Dodson, Laura Higdon, Dr. Jennifer Hughes

Adviser: Professor Jennifer Hughes

The purpose of this study was to investigate how role overload in men and women affects their meals, sleep, and physical health self-care. This study is important because role overload takes a toll on many aspects of a person's life. If more people were able to recognize the signs of role overload and the detrimental effects it could have on aspects of their life, they would have a better knowledge and understanding of how to begin taking steps to prevent or lower their role overload. This study had 670 employed participants. The participants were collected through e-mail, flyers, and social media. They were

asked to take an online survey using SurveyMonkey. The findings were that women who reported greater role overload engaged in fewer nutritious meals and had less sleep as compared to men. We also found that participants who were experiencing high role overload engaged in fewer regular meals, engaged in fewer nutritious meals, and scored low when rating their physical health self-care and their quality of sleep. These results are important because they show the effects of role overload on meals, physical health self-care, and sleep.

A Cross-Sectional Study of Psychological Distress among African American College Students at PWIs

Authors: Matresa Flowers, Dr. Carrie Brown

Adviser: Professor Carrie Brown

The purpose of this study was to examine psychological distress levels among African American college students who attend Predominantly White Institutions (PWIs). We conducted a cross-sectional study and we hypothesized that seniors would report the highest levels of psychological distress among the four classes. We did not hypothesize a difference in psychological distress levels between women and men. The participants were 95 students attending PWIs (77% women, 23% men). The results of a one-way ANOVA revealed a significant difference in distress levels among the four classes, $F(3, 91) = 3.77, p = .013$. Tukey's HSD revealed partial support for our hypothesis, as seniors had higher psychological distress scores ($m = 24.66, sd = 7.63$) than juniors ($m = 16.87, sd = 4.29$), but not the other classes. The results of an independent-samples t test revealed that women's psychological distress levels ($m = 22.56, sd = 7.39$) were (marginally) significantly higher than men's ($m = 19.29, sd = 5.17$), $t(93) = 1.93, p = .057$. The results of our study indicate that factors including class status and gender may contribute to different psychological distress levels for African American college students at PWIs.

Role of Ets and Runx Family Transcription Factors in the Regulation of Human LAT Gene Expression

Authors: Lena Glowka, Melissa Easley

Adviser: Professor Tim Finco

The human LAT gene encodes an intracellular adaptor protein that is crucial for the development and/or function of T cells, mast cells, Natural Killer cells, and megakaryocytes/platelets. Previously, the lab identified highly conserved binding sites for the Ets and Runx family of transcription factors within the LAT proximal promoter region. Results from the electrophoretic mobility shift assay (EMSA) and transient transfections suggested that Ets1, Elf1 and Runx1 bind to these sites to modulate LAT transcription. More recently, the lab performed siRNA mediated knockdown experiments to investigate the functional contribution of Ets1, Elf1, and Runx1 in regulating LAT gene expression in T cells and mast cells. Surprisingly, knockdown of these transcription factors did not have an appreciable effect on LAT expression. Based on these results, the lab used chromatin immunoprecipitation assays (ChIP) paired with quantitative PCR to ascertain the binding of these transcription factors as well as others to the LAT promoter region. This research will address the results gleaned from the experiment discussed above.

Examining Leisure Activities, Role Overload, Well-being, Happiness, and Life Satisfaction

Authors: Laura Higdon, Shakirah Dodson, Dr. Jennifer Hughes

Adviser: Professor Jennifer Hughes

This study focuses on how leisure-time affects a person's well-being, happiness, life satisfaction, and role overload. Leisure-time is important to research because during this period free-time occurs, and it is formally recognized as a primary good; this important well-being resource provides opportunities for participation in social life and activities (Chatzitheochari & Arber, 2012). This study consisted of 165 men and 498 women who were employed. We found that people who engaged in leisure activities reported being happy. Engagement in leisure activities significantly correlated with greater life satisfaction. Gender did not significantly determine if men engaged in more leisure activities than women. Also, more work hours did not significantly relate to engagement in less leisure activities. Finally, engagement in leisure activities correlated with greater role overload. Implications can include helping workers who work a significant amount to see how they need to organize their free-time. Leisure-time can help people by giving them freedom to do what they want, and if one has too much role overload, they may not be as happy because they are not getting much time for themselves.

Food Enrichment in Sun Bears at Zoo Atlanta

Authors: Martaya Hopkins, Kathryn Riale, Bonnie M. Perdue

Adviser: Professor Bonnie Perdue

This study demonstrates the effects of food enrichment on stereotypic behavior; described as tedious and functionless behavior patterns like pacing, tongue flicking, and head swaying. Such behaviors are often a manifestation of deeper issues: lack of stimulation or an inability to perform instinctual behaviors. Because many zoo animals are endangered, one must make them comfortable in their new habitats. To achieve this researchers and caretakers are putting forth an effort to make enclosures mimic the natural environment of each animal. Since sun bears spend half of their day searching for food, their meals should be presented in a way that is challenging and provocative of varying behaviors. This information led to the hypothesis that food enrichment would cause a decrease in stereotypic behavior in Malayan sun bears. To test this prediction, researchers compared stereotypic behavior when food enrichment was present or absent in the Malayan sun bear (*Herlarctos Malayanus*) exhibit at Zoo Atlanta in Atlanta, Georgia. A male and female sun bear were observed to determine their reactions to enriched feedings. Data were collected by two student researchers using a self-made data sheet and ethogram, an iPhone 5, a clipboard, a writing utensil, and a large bag. Both the male and female subject spent significantly less time pacing (i.e., duration) when food enrichment was present, than when it was absent. These results suggest that food enrichment is a beneficial practice for reducing pacing behavior in the sun bears at Zoo Atlanta.

Agnostic Behavior Observations and Brain Injection Studies of *Lythrypnus dalli*

Authors: Cierra Lockhart, Alma Thomas, Alyssa Millikin

Adviser: Professor Lock Rogers

Agonistic behaviors are an important subset of social behaviors that have consequences for social status, reproduction, and lifetime fitness. In the wild, bluebanded gobies (*Lythrypnus dalli*), a highly social, sex changing fish, form social groups of one dominant male and multiple subordinate females. An individual's agonistic behavior not only affects its own social status and reproduction, but also the behavioral and reproductive dynamics of the entire group. We used small, experimental groups of bluebanded gobies to study the effect of the nonapeptide arginine vasotocin (AVT), an important regulator of vertebrate social behavior. We used intracerebroventricular injections of arginine vasotocin, Manning Compound, an AVT antagonist, or control injections to determine the effects of AVT signaling on the agonistic behavior of dominant female bluebanded gobies. The alpha female was selected because of her strong influence on the social hierarchy. Initially, these alpha females were placed into a randomized social group including a male bluebanded goby, a beta female, and a gamma female. We observed agonistic behavior in the group before injection to serve as an experimental control. Following the initial observations, we injected alpha females, returned them to their groups, and observed behavior again. We then compared agonistic behavior between groups with AVT-, Manning Compound-, and control-injected alphas. We predict that manipulating AVT signaling in the brain will result in a change of behavior for the alpha female and for others in the social group. By further developing our knowledge of the mechanisms that regulate bluebanded agonistic behaviors in various social contexts, we can learn about the brain, behavior, and how the brain controls the behavior of other species.

Applied Mathematical Theory: Improving Pickup Route Logistics

Authors: Kimberly Luong, Kayleigh McCrary, Victoria Wood, Ashley Monsrud,
Bi Ru Tang, Kristina Evans

Adviser: Professor Rachel Bayless

MedShare is an environmentally-conscious, Non-Profit Organization that reclaims surplus medical supplies to donate to developing countries with qualified, but undersupplied healthcare facilities. They obtain their donations on a weekly basis, visiting donor facilities all over Georgia during near rush hour times with one truck. MedShare's donation routing problem can be modeled as a simple graph theory problem known as the Traveling Salesperson Problem (TSP). Using data supplied by MedShare, we applied basic graph theory algorithms to help make their routes more efficient. With 30 donation locations inside and outside of the Atlanta Metropolitan Area, MedShare often drives between 500-800 miles a week to pick up their donations. At times the driver must return before visiting all locations in order to stay within working hours, thereby losing out on picking up sometimes time sensitive medical supplies. In an effort to improve MedShare's efficiency, we used basic graph theory algorithms to find improved routes, thus saving MedShare time, money, and reducing their carbon footprint.

The Attentional State-dependent Memory on Gradual Visuomotor Learning

Authors: Shenkinah Phillips, Hee Yeon Im, Joo-Hyun Song

Adviser: Professor Jennifer Larimore

Visuomotor learning requires attentional resources in order to establish the novel association between visual information and motor commands. A prior study (Song & Bédard, 2013) showed that attentional state could be formed as an internal context during visuomotor learning and reinstated at recall to facilitate performance. They used a dual-task paradigm where participants concurrently performed a sudden visuomotor rotational adaptation task (45°) and an attention-demanding task. The rotation of 45° was abrupt so that participants were aware of this cursor rotation during visuomotor learning. Since there is a close connection between attention and awareness in motor learning (Cleeremans, 1993), we further examined whether this attentional-state dependent memory retrieval can be generalized even when visuomotor learning occurs without awareness. Instead of the sudden adaptation task, we used a gradual adaptation task, in which the perturbation gradually increased with a very small amount (0.3°/trial). We formed three groups: consistent, inconsistent, and control. The consistent group performed the attentional task both during adaptation and recall; the inconsistent group performed the attentional task only during adaptation; and the control group did not perform any attentional task. By comparing recall performance of the three groups, we found that consistent attentional states during adaptation and recall facilitated visuomotor memory retrieval even when the motor task involved gradual, implicit learning, replicating the previous finding on the sudden adaptation. Furthermore, changing the type of attentional task did not affect attentional state dependent memory, suggesting that facilitation by consistent attentional states was not task-specific but generalizable.

The Rapidly Varying Light Curve of the Binary Star System Z Chamaeleontis

Author: Sarah Reid

Adviser: Professor Chris De Pree

A binary star system consists of two stars orbiting one another. Many of the stars in the universe (perhaps 30-40%) are found in binary systems, and many with orbital periods that are measured in years or months. Z Chamaeleontis, on the other hand, has a period of only 1.78 hours - which is a very short period relative to most binary star systems. Not only is its short period remarkable, but the system's brightness changes dramatically in magnitude (from 11.5-16.23 on a visible light scale). The stars in this particular binary are a part of a dwarf nova that features a white dwarf and a red dwarf. We have observed the changing brightness as a function of time (the "light curve") of this binary star system on two nights this spring with the SARA-South telescope located at Cerro Tololo in Chile. We report known details of this binary system, and our measurements of its unusual light curve.

Calphostin C Inhibits Angiogenic Activity in HESC Cells

Author: Shakoora Sabree

Adviser: Dr. Juanjuan Wu

The critical role of endometrial angiogenesis as it relates to decidualization, early placentation, and embryo survival is widely accepted. Coordinated vascular development needs to occur on both maternal and fetal sides of the unique implantation interface. Dysregulation of these processes can result in defective implantation and early miscarriage. The exact mechanism(s) underlying regulation of vascular endothelial growth factor (VEGF) and other angiogenic factor production during this crucial period of development is currently unknown. Previous studies done in the Sidell lab showed that retinoic acid (RA), in the presence of transcriptional activators of VEGF (such as tetradecanoylphorbol acetate, TPA; TGF- β), augments VEGF secretion in human endometrial stromal cells. To elucidate which kinase pathway is involved in this phenomenon, multiple kinase inhibitors were tested. In this study, it is hypothesized that Calphostin C (Cal C), an upstream protein kinase C (PKC) inhibitor of VEGF production, will inhibit RA+TPA induced VEGF production. For this experiment the following concentrations of inhibitor were used: 1 μ M of all-trans RA, 50nM of TPA, and 0.5 μ M and 1 μ M of Cal-C. VEGF ELISA and IL-6 ELISA assays were used for quantification with results expressed in pg/mL. Based on the results, in human endometrial stromal cells (HESC), the PKC inhibitor, Cal C, inhibits RA induced VEGF secretion and has what appears to be little effect on IL-6 production. The positive effect of RA on VEGF secretion from endometrial stromal cells (ESC) observed in the present report will possibly prevail as a contributor to implantation site vascularization.

Map Visualizations: Explaining Travel Routes through Pictures

Authors: Denisse Saucedo, Alison Footman

Adviser: Professor Rachel Bayless

MedShare is a non-profit organization that gathers unused and reusable medical supplies and redistributes them to countries and organizations in need. MedShare collects most of these supplies by driving a truck around the San Francisco Bay area, to collect donations from surrounding hospitals and medical centers. When trying to improve travel routes, map visualizations are a helpful tool in explaining complex travel patterns or showing inefficient routes. Maps range from basic figures of dots and lines, to complex figures that include the terrestrial and traffic patterns in an area. We will present the importance of map visualization and the different areas in which it can be used, as well as software that can help create these maps.

The Future of Oracle: Sustaining Competitive Advantage and Adopting New Strategies

Author: Saneen Shakeel

Adviser: Professor Thomas Will

Oracle Corporation—founded in 1977 by Larry Ellison, Bob Miner, and Ed Oates—is a multinational technology corporation operating in the enterprise software and computer hardware industry that also develops middle-tier software, customer relationship management software, enterprise resource planning software, and supply chain management software. Oracle is currently the second largest independent software company globally and focuses on both innovation and results. The corporation’s vision revolves around simplifying, standardizing, and automating enterprises, and its goal is to become an innovative leader in middleware and applications through acquisitions and integration. This project analyzes the resources, core competencies, business-level strategy, and corporate-level strategy that have enabled Oracle to gain competitive advantage. However, long-term success entails sustaining as well as gaining competitive advantage. Thus, this project explores various means by which Oracle might sustain its competitive advantage in an increasingly cloud-dominated world. In particular, it is recommended that Oracle focus on technical strength in order to develop innovative, integrated products.

Eco Theme House: Sustainable Living On and Off Campus

Authors: Tenesha Talley, Tempist Harris, Jasmine Ponder, Yijun Wan, Karion Smith, Care Bacon

This year in the Eco Theme House, we have garnered an insane amount of knowledge on sustainability. The importance it has on a small scale, such as our campus, helped us collectively to understand the overall benefits that come with living sustainably. This presentation will inform about the benefits of living in a sustainable and eco-friendly manner while living on a college campus and how to incorporate these habits into daily routines while away from campus. Advice will be given on recycling and conserving water and electricity, as well as information on the overall impact this makes on your community’s environment.

The Effects of Perceived Luckiness on Physical Performance

Authors: Brianna Vannoy, Xi Zhang, Jeannette Burkle, Nicole Caldwell, Hayley Dixon

Adviser: Professor Barbara Blatchley

Recent studies of the role of luck on performance of a physical task have revealed inconsistent results. In addition, few studies have addressed the role of a specific belief in being unlucky on task performance. The purpose of this current research is to replicate the study conducted by Damisch (2010) in order to confirm whether luck can have an impact on physical performance. Beyond that, the research examines whether good luck or bad luck beliefs differ in their impact on an individuals’ physical performance. A golf-putting task, tested at two distances, and a ladder-toss task were included in the study, and the participants were randomly divided into three groups. One group was primed to believe they were using lucky equipment; one group was primed to believe

bad luck was associated with their equipment; and the third group was not primed. Participants will complete a follow-up survey on their superstitious beliefs and athletic experience after the physical tasks. It is expected that performance on both tasks will improve if participants believe themselves to be lucky and will decrease with belief in bad luck.

ASC Chamber Ensemble Concert
Maclean Auditorium – 1:00 pm

Strings Ensemble
Qiao Chen Solomon, Director

Selections from 15 Petite Trios

Andante

Allegro

Allegro

Andante

Allegro

Allegro

Johann Baptist Vanhall (1739-1813)

Adagio in D Minor

Kariana Leung, Violin Anner Harris, Violin Sorena Campbell, Cello

Xavier Carazo (a.1923)

Arioso from Cantata #156

Allegro

Träumerei from Kinderszenen, Op/ 15 #7

El Choclo

Briana Robinson, Violin Courtney Anderson, Cello

Johann Sebastian Bach (1685-1750)

Jean Baptiste Loeillet (1680-1730)

Robert Schumann (1810-1856)

Angel G. Villoldo (1861-1919)

Arr. Lynne Latham

Woodwind Ensemble
Jeana Melilli, Director

Fuga from Notturmo

Rachel Shower and Olivia Shull, Flute Jacquelyn Zbrank, Alto Flute Taisha Likes, Bass Flute

Carl Ditters Von Dittersdorf (1739-1799)

Dúo Para Flauta y Corno

Avanti Lemons, Clarinet Carmen Jones, Horn

Pablo Fernando Llamazares (a.1975)

Piano Duets
David D'Ambrosio, Director

Duettino in G Major <i>Leandra Massei and Erin Balding, piano</i>	Muzio Clementi (1752-1832)
Little Plain Jane, Empress of the Chinese Nodding-Dolls from "Mother Goose" Suite <i>Wanyuan Wang and David D'Ambrosio, piano</i>	Maurice Ravel (1875-1937)
Sonata in C Major <i>Allegro assai</i> <i>Zheng Liang and Ruoyuan Shen, piano</i>	Muzio Clementi (1752-1832)
Slavonic Dance in A Major, Op. 46 No. 5 <i>Megan Do and Jiawen Wang, piano</i>	Antonín Dvořák (1841-1904)