
RADFORD UNIVERSITY
25TH ANNUAL
STUDENT ENGAGEMENT FORUM
APRIL 19TH-21ST, 2016
TNC

Student Engagement Forum Coordinators

Joseph I. Wirgau, Director OURS

Matti Hamed, Graduate Assistant OURS

Jessica Mundy, Executive Student Assistant OURS

The following individuals and offices are acknowledged for their contributions:

Sally Cox, Event Planning Manager

David Horton, Assistant to the Dean of Science & Technology

Ashleigh Price, Honors Academy Administrative Assistant

Emily Guise, Administrative Assistant OURS

Jason Davis, Associate Director of the Honors Academy

Radford University Printing Services

Hilda Dickerson, Dining Services

About the Cover Art

Taylor Carroll is a Sophomore Studio Art major with a concentration in watercolor.

When I created this piece, I thought back to when I was younger and how all of my peers were very excited to engage in the material we were learning about. We were always very eager to ask and answer questions. As my academic career progressed, it is seen to be "uncool" to be engaged and have discussion. Fewer and fewer of my peers wanted to raise their hands to engage with our teacher. I now have classes as large as 100 students, yet only 3 of them actually participate. Therefore, when I think of engagement I tend to think back to 3rd grade when we were all so eager to be part of the discussion. I tried to convey that sense of youth in my style choice. I used bold colors and sketchy line work to bring us all back to our younger days. Hope you enjoy!

Welcome!

It is my great pleasure and privilege to welcome you to the 25th Annual Student Engagement Forum! The Student Engagement Forum showcases the highest levels of academic achievement and creation of new knowledge at Radford University through our campus community's undergraduate and graduate students' creative works, scholarship and research. The displayed work represents a tremendous undertaking, often involving teams of students and faculty, to make progress on answering important questions for society, such as, how do we find better methods to treat diseases or modeling the outbreak of a disease, how do we create sustainable living, how do we break the correlation between sports participation and risky behaviors, and so many more you will have to read through this thick program or better yet wander room to room for the next 48 hours to see them all!

Although what you hear and see represents countless hours of work, it is only the tip of the ice berg. Wernher von Braun a founding father of rocket technology described "basic research as what I'm doing when I don't know what I am doing." It is only through great perseverance, belief, and support that any of these projects succeeds. I want to publicly thank all of the presenters for staying the course and everyone who has sparked or encouraged the needed curiosity to get started, said a supporting word or offered a shoulder to lean, or even cry on, when the inevitable challenges of conducting relevant research arose.

Much like these research projects, organizing the Student Engagement Forum is a team effort. Isaac Newton attributed his success to the work that came before him with his famous quote on scientific inquiry: "If I have seen further, it is by standing upon the shoulders of giants." We are lucky enough to be able to see the 25th version of "the forum" by standing on the shoulders of previous coordinators Dr. Joe King and Dr. Niels Christensen. This year the heavy lifting has been done by Matti Hamed and Jessica Mundy, and the success of the entire forum is in large part due to their professionalism and hard work. Thank you to Sally Cox and her team in Student Events, as well as David Horton and CSAT Dean's Office, as both groups are easy and fantastic to work with in reserving and setting up all the rooms used for this event. I want to thank Taylor Carroll for creating an engaging cover and a wonderful message to go with it. Ashleigh Price and Emily Guise need to be publicly applauded for helping to keep OURS running while time and energy were diverted this past month toward forum preparations. Lastly, I would like to thank Radford University for trusting me with this job, Dr. Jeanne Mekolichick for being an advocate and sounding board and everyone I have had the extreme pleasure to help support this past year. You make it easy to come to work each day!

Enjoy the celebration of new knowledge and I hope to see you all next year for the 26th version of the Student Engagement Forum!

Dr. Joe Wirgau
Director, Office of Undergraduate Research and Scholarship (OURS)

Tuesday, April 19th

Wednesday, April 20th

Thursday, April 21st

Monday, April 25th and Tuesday, April 26th

Graduating Highlander Scholars

Jenna Roark

Capstone mentor: Louis Gallo, English

Angels and Demons: A Psychoanalysis of Personal Poetry

For my Honors Capstone Project, I had to compile a book of poetry that I had written over the course of a year. Once my faculty mentor had proofread and edited this poetry, I compiled the final draft and published it for my faculty mentor to see. Once approved, I used the theories of Sigmund Freud and Carl Jung to perform a psychoanalysis of my own personal poetry, searching primarily for specific archetypes and imagery. These theories fall under the school of Psychoanalytic Criticism, which is a subset of Literary Theory and Criticism. Once the analysis was performed, I wrote a ten page paper that explained and defended my analysis, which showed that performing a psychoanalysis on one's own poetry is difficult, but provides insight to one's psyche.

Tommy Morgan

Capstone mentor: Lisa Baker-Webster, Communication

Public Relations and Philanthropy: An Autoethnography

The purpose of this autoethnography is to provide qualitative research about the impact public relations has on philanthropic endeavors. By utilizing my personal experience with establishing a philanthropy for my fraternity, Phi Sigma Pi, it brings a larger sociological understanding to the effects the field of public relations has on being successful in philanthropy. This poster presentation will present the findings from over a year of qualitative research from personal experience I had when establishing a formal relationship between my fraternity and the philanthropic organization, Project Discovery. The expectation is that the information presented will allow other young communication professionals to be successful in the nonprofit or charitable sectors of the field. Additionally, through the use of communication theory, such as the narrative theory, I can illustrate how autoethnography is a form of meaningful communication. This personal insight into the struggles and successes of utilizing public relations to develop philanthropic relations will create a guide for future communication professionals hoping to achieve similar goals.

Cynthia Wenger

Capstone mentor: Jeff Wilner, Psychology

Mindfulness and Social Media Use

Social media use has increased dramatically in recent years, but there is still much to be learned about the factors influencing people's use of social media. Previous studies have shown that many of the variables that are correlated with social media use (e.g., anxiety) are also correlated with mindfulness (awareness and attention to one's thoughts, emotions, and environment), suggesting that mindfulness and social media use are related to one another. The participant pool for this study was composed of Radford University students. This population was ideal because social media use is highest among young adults, ages 18 to 28. Here, we used a survey to obtain measures of overall social media use, as well as use of the three most commonly used social media platforms (Facebook, Twitter, and Instagram). Participants also completed questions about demographics, the Mindfulness Attention and Awareness Scale, and the State-Trait Anxiety Scale. Data exploring the relationships between social media use, mindfulness, and anxiety will be reported. If our hypotheses are correct, participants with a higher mindfulness scores will report lower use of all forms of social media, experience lower levels of anxiety, and have higher GPAs.

Amanda Dixon

Capstone mentor: Dayna Hayes, Psychology; Sarah Redmond, Biology

Analysis of Corticotropin-Releasing Factor in the Amygdala of Rats following Human Interaction during Adolescence

Human interaction during animal research is a necessary component of data collection. However, it is often overlooked as a potential confounding variable during data interpretation. Depending on the researcher and the manipulation, this interaction could be calming or stressful for the animal yet no research has systematically investigated the effects of experimenter interaction on the stress response system in rats. Thus, this study examines a marker of stress in the brain of adolescent rats after being exposed to varying levels of human interaction during adolescence. Twenty-eight female, adolescent Sprague-Dawley rats were assigned to one of four interaction conditions: Tickled, Playful, Restraint, and Control. Following behavioral interactions, animals were perfused and brains extracted for neurobiological analysis. Brains were sliced and will be stained via immunohistochemistry (IHC) for Corticotropin-Releasing Factor (CRF) reactivity in the amygdala, a region associated with stress and emotionality. CRF is a primary component of the hypothalamic-pituitary-adrenal axis (HPA axis), also referred to as the stress axis. It is hypothesized that the restraint condition will have higher CRF immunoreactivity (IR), and the tickled and playful groups will have less CRF-IR in the amygdala than controls. If the method of human interaction is determined to be a confounding variable, future animal research would have to adjust accordingly in order to minimize the effects of this interaction. These results could also have a practical application to the interaction human adolescents have with other humans during that developmental period.

Alyssa Pull

Capstone mentor: Ken Smith, Art

Illustrating Change: Turning the Page to Sustainable Living

As consumerism and technology have progressed, the topics of environmentalism and sustainability have grown to accommodate such societal changes. However, these philosophies and ideologies remain controversial and are relatively unknown to most. To overcome the environmental challenges faced by an apathetic population, education is the key to raising awareness for these issues in hopes to foster positive sustainable change. Since antiquity, books have been a keystone to dispersing knowledge. However, in the modern age of digital technology, their physical form has been challenged. Form and function are juxtaposed as this capstone continues the narrative, using the physical form of the book as an educational communication tool, while utilizing the function of digital graphic design technology to develop informative contents. With this in mind, this distinct format aims to create a unique dialogue for greater discussion by fostering the conversation between the reader and the designated topics within sustainability. For this capstone, an illustrated series of five short stories is created to explore the topic of sustainable living. To foster the development of lifelong habits in sustainable living from an early age, the books are specifically targeted toward the natural curiosity of children around age five. Centering on the subjects of water conservation, energy reduction, waste elimination, habitat preservation, and sustainable food sources, the set of books intend to be both thought provoking for adults, while visually stimulating for children, allowing a universal discussion between all generations and populations alike.

Jacob Hardbower

Capstone mentor: Kenneth Smith, Art

Illustrating Change: Encouraging Inquiry into Alternative Energies

The world is experiencing a period of technological and societal advancement that has altered almost every aspect of American life. Part of this new era is a declining dependency on fossil fuels courtesy to innovative systems for renewable energy. Each year, the growing benefits of alternative energies make it more enticing to consumers looking for a way to cut down on costs and aid the planet. A large part of why these technologies are not growing even more rapidly is education. While gaining steam, the movement toward alternative energies could be stronger if people started questioning the ways in which we source energy today. / Research has shown that elementary aged children have this yearning – to know the meaning and reason behind ideas and actions. Leveraging this natural desire for answers, this capstone targets children around the age of five with material designed to garner inquiry into America's energy sources. Through the detailed production of a series of five illustrated short stories, the capstone intends to show fictional representations of real-life technologies and their benefits. The narratives of the stories run parallel to the U.S. energy issues, encouraging children to bring up problems and solutions with a teacher or parent and inspiring them to be innovators. Each story focuses on a different energy source relating to one of the following real-world technologies: wind power, hydropower, geothermal energy, solar power, and bioenergy.

Patricia Atkinson

Capstone mentor: Ken Smith, Art

Beauty of the Bay - Wicomico Church, VA

For my capstone project, I decided to go back to my roots of painting and combine my knowledge learned as a graphic design major with the traditional art form. The Beauty of the Bay consists of a small series of acrylic paintings, with the subject matter pulled from Wicomico Church, VA, which is a town located off of the Chesapeake Bay and the Wicomico River. / Wicomico Church has been a very influential part of my life. I have grown up visiting my grandparent's river house there and years ago my parent's bought a river house too. This has given me the love for the water, the beach, etc., and it has also had a major influence on my art, specifically my love for nautical themes. / These paintings are done in a realistic style, to attempt to capture the beauty behind the imagery itself. They are not intended to evoke any kind of deep emotion or feeling. The reason behind the paintings is solely to produce art that is aesthetically pleasing and incorporates something personal for me. Unlike a fair amount of nautical and beach paintings, they are not painted with the intention to sell; they are created "for the artist." / The creative process for this project has been difficult. There have been many challenges, such as what subject matter to choose, what looks best together as a series, needing to refresh my painting skills and techniques, and more. So, I figured out how to adapt my process to come up with a project as close to my original vision as possible. As many of us know, our original ideas tend the change and evolve as time passes and we start working through them. Change and challenges are to be embraced and overcome to enhance the artistic process and end result.

Layla Dobos

Capstone mentors: Z.L. Feng, Art; Cheng Fen Yeh, Art

The Anatomy of a Painting

The purpose of this project is to inform the public about the amount of work that artists may go through to produce a successful painting. As an artist myself, I aim to show my own process that I have developed specifically during my four years of undergraduate study in watercolor painting here at Radford University. In a way that is similar to my artwork, I will take my viewers on a visual journey. This time, however, I will be filming each step, with the end product being a time-lapse video and a painting. This video will show the entire process that I have developed—from building the cradle that holds the panel, to permanently sealing the finished result.

Jacob Vaught

Capstone mentor: Matthew Close, Biology

Comparative Histology of the Oral Mucosa of Snakes

The snake tongue has been modified for the detection of volatile chemicals, and has subsequently lost sensory papillae found on tongues of many other animals. The oral mucosa of snakes, however, contains sensory papillae that possess both taste and touch receptors, but relatively few studies have been published on the comparative anatomy of the snake oral mucosa. Because snakes vary greatly in terms of their skull morphology, we asked the question whether there would be differences in touch and taste receptor distribution and composition across several snake lineages. We compare the gross anatomy and histology of the oral mucosa across four families (Pythonidae, Boidae, Viperidae, and Colubridae) and describe the concomitant changes that have occurred as different modes of prey acquisition have evolved. Our preliminary results show that the relative position of sensory papillae is similar across snake taxa, but there may be differences in papillae density in advanced snakes.

Hannah Gullickson

Capstone mentor: Kimberly Lane, Chemistry

Molecular modeling of the binding of the Z-77 inhibitor with the bacterial loop of E. coli beta-glucuronidase

The activity of some bacterial forms of beta-glucuronidase are associated with side effects observed with the administration of the chemotherapy drug CPT-11, a pro-drug for the topoisomerase inhibitor SN-38. In the liver, SN-38 is modified with a glucuronide group to produce less toxic SN-38G. In the large intestine, reactivation to SN-38 occurs when beta-glucuronidase cleaves the glucuronide group from SN-38G, leading to severe gastrointestinal damage and diarrhea. Recently, a new generation of inhibitors, including Z-77, have been shown to decrease this damage associated with CPT-11 dosage. These inhibitors interact with a loop found near the active site of the enzyme. This loop is necessary for inhibitor binding in bacteria, but does not exist in the human form of the enzyme, allowing specific targeting to bacterial species of beta-glucuronidase. F365 in this loop has been shown to make direct stacking interactions with the Z-77 inhibitor. To determine the importance of this residue in the binding of Z-77, mutations of F365 to alanine, leucine, tyrosine, and tryptophan were made using ICM-Pro from Molsoft, LLC and docking studies were performed to predict the thermodynamics of inhibitor binding. Molecular changes to the Z-77 to determine the pharmacophores were also performed and characterized by docking studies using this software. The results of these studies will hopefully guide future structure based drug design.

Hayleigh Bostic

Capstone mentor: Margaret Pate, Criminal Justice

Improvement of Batterer Intervention Program Standards

The current standards for Batterer Intervention Programs (BIP) in Virginia need to be updated by including current research findings and practices. These standards were written about twenty years ago and do not include the findings from recent programs. This project aims to write a grant, which will then be used to conduct research through evidence-based practices in current ongoing BIPs in Southwestern Virginia and Richmond. The current most effective evidence-based practices were found through comparison of the literature on this topic. Other suggestions made to improve the standards were provided through discussion with members of the Virginia Batterer Intervention Program Certification Board (BIPCB). The data collected from the program will then be used to improve the current standards of Virginia Batterer Intervention Programs.

Taylor Brock

Capstone mentor: Rick Van Noy, English

A Qualitative Analysis of the Scholar Citizen Initiative

This Honors Capstone project analyzes how programs such as the Scholar Citizen Initiative help provide important educational opportunities that improve student retention and growth while redefining student success. I conduct interviews with both participants and professors to add context to the quantitative data that the program's staff has collected over the past five years. The report examines problems associated with motivating students to become civically involved in the local community. Students and faculty provide commentary on the initiative, stating how it has enriched their academic as well as personal lives. In the conclusion, the report argues in favor of continuing the initiative at Radford University.

Carter Jenkins

Capstone mentor: Auguste Barfield, Health and Human Performance

Adaptive Sport Outcomes Among Athletes with Spinal Muscular Atrophy

An adaptive sport is any sport or Olympic event in which the rules or objectives have been modified to meet the needs of athletes with disability. The benefits of physical exercise are numerous and easily observed. The purpose of this literature review is to determine the outcomes of participation in adaptive sports, specifically pertaining to athletes with Spinal Muscular Atrophy (SMA). SMA is a genetic motor neuron disease that, in time, will cause the denervation of skeletal muscles leading to atrophy and weakness. The outcomes observed in this study cover several aspects of life. The review focuses on the outcomes in the following fields: psychosocial, aerobic fitness, muscular strength and fitness, and balance/flexibility. All of these fields were chosen carefully with regards to the symptoms and everyday challenges experienced by a person with SMA. The outcomes may be positive or negative, as this review is designed to account for as many known outcomes of adaptive sport as possible. Although the majority of the outcome fields relate to the physicality of the human body, the psychosocial outcomes of adaptive sports are quite expansive. The amount of research on this topic is relatively small, and much more needs to be done in the future.

Danielle Bishop

Capstone mentor: David Sallee, Health and Human Performance

Body Image and Behaviors Related to Disordered Eating

The impacts of body disassociation and its effect on adolescents relating to onsets of sexuality and weight management strategies is of particular interest. This is predominantly in regard to current research linking body dissatisfaction associated in adolescents with body mass, low self-esteem, and abnormal eating habits. The purpose of this research is to identify the relationships between pubertal maturation, weight management strategies, and the development of social comparison processes that begin to trigger a heightened awareness of one's physical appearance and body image concerns during the transitions from early to mid-adolescence. The goal of this research is to show and provide additional support for the theory that body dissatisfaction in adolescents is correlated with onsets of sexuality and weight management strategies which may include the use of diet pills, forces of diet (fasting, vomiting, laxatives, etc.) and to look at its effects based on gender differences. Data used for this research was drawn from communities in Southwest Virginia in order to reveal and compare odds ratios and cross tabulations. Sharing this information could be valuable for the creation of informative lessons or prevention practices for students on campus as well as the larger community.

Emily Hoke

Capstone mentor: J.P. Barfield, Health and Human Performance

The Relationship Between Foot Pronation and Knee Valgus in Females

Anterior cruciate ligament (ACL) injuries continue to be the largest problem in orthopedic sports medicine (Renstrom, et al., 2014). Evidence supports higher knee valgus angles during landing are correlated with a greater risk for ACL injury (Joseph et al., 2008). Excessive foot pronation may increase valgus angles during landing; however, these results have not been substantiated in women (Torry et al., 2011). Therefore, the purpose of this investigation was to study the relationship between foot pronation and knee valgus in women. Twenty-seven active women (>150 moderate-intensity minutes per week) were recruited from undergraduate courses. Participants completed informed consent and IRB approval was obtained prior to the study. Standard navicular drop test measurements were used to assess foot pronation (Moul, 1998). Specifically, the height of the foot's navicular tuberosity was measured during both sitting and standing and the difference between the two (i.e., drop) was used as the predictor score. A standard landing test was used to assess knee valgus (Bennett, Ranking, and Rauh, 2012). The participants stepped off a ledge (approximately 45cm) landing on both feet as they would normally. Motion capture software (ubersense) on an iPad was used to record knee valgus at the lowest point during the landing. Force vector lines were drawn onto the software to determine knee valgus during landing. A correlation coefficient was used to determine relationship between foot pronation and knee valgus on each side of the body. Results. A weak relationship existed between foot pronation and knee valgus ($r = .27$ for left; $r=-.14$ for right). These results suggest that foot pronation likely does not increase valgus angles during landing and therefore likely does not increase ACL injury. These findings show the correlation for moderately active young females, but results might be different with competitive athletes.

Katelynne Seager

Capstone mentor: David Sallee, Health and Human Performance

Sport Participation and its Association with Alcohol Related Behavior

Sport participation and its association with alcohol related behavior is of particular interest, especially in regard to current research linking the practice to risky behaviors including increased alcohol consumption at a higher frequency. The goal is to provide additional support for the research behind sport participation and its association with alcohol related behaviors. Furthermore, to educated and inform parents, teachers, and coaches the correlation between sports participation and its association with alcohol related behaviors in order to prevent and or decrease the correlation.

Alex Paragas

Capstone mentors: Andrew Ray, Information Technology

Introductory Robotics for Education

Ever wondered how robots actually worked? Have you have ever wanted control one before? Our work centers on the creation of several robots to investigate how they might be used in existing computer science courses. The major goal of the study is an introduction to robotics and to provide this opportunity for students in their first semester courses. Current courses typically do not have a connection to the real world, whereas this study enables students to see a tangible link between their abstract code and the real world. Prior research has shown increased success when this opportunity is afforded students in their introductory courses. Initial work has dealt with a prototype for basic movement and evolved into a path following robot. The path following robot follows a pre-existing pathway in order to carry objects around. Current work is focusing on developing a robot that can navigate a maze like environment. Future work will focus on specialized movement beyond driving. A report detailing what has been created and what is required of students in introductory courses will be produced at the end of the study. Professors will be able to take this report and have a supply of ready-made projects and resources for their students.

Avery Drainer

Capstone mentor: Nathan Bicak, Design

Establishing Residential Criteria for Individuals with Autism Spectrum Disorder

This senior capstone project is the residential design for a family living with an autistic child. In an effort to expand knowledge, there is a focus on how aging-in-place research can inform designing for autism and how there are useful crossovers between the topics. The intent of the project is to develop an understanding of how someone with autism interacts with the physical world, and ultimately design a nurturing residential space conducive to their care and development. Information gathering on ASD, the design of various spaces, and the impact of aging-in-place are all topics of research under review. Information gathered from The Autism Society, journal articles, interviews, and design literature have guided the development of a quality matrix. This matrix evaluates sensory reactions and domestic activities relative to their influence on design elements and principles. The information included in this matrix formally began the design process. This poster presentation will include this matrix, a mind map, that shows how the senses influence the subsequent spaces, process work including, bubble diagrams, blocking, and beginning schematics, and a design solution featuring prototypical methods for ASD. From there, the schematics develop into organized floor plans that utilize space effectively and meet the needs of individuals with autism. As plans are solidified, materials, finishes, and furnishings are selected to create a nurturing environment.

Maggie Bebel

Capstone mentor: Julie Temple, Interior Design/Fashion

A Inquiry on the Historical Restoration of Radford's Arnheim

This senior capstone project involves the study of a local, Radford, Virginia home and the digital restoration of the property as it may have existed when Dr. John Blair Radford had it built for his family in 1838. Fashioned in the Federal / Greek Revival style of architecture popular at the time, this estate, named Arnheim (German for "home of the Eagle"), is located overlooking the New River, adjacent to the current high school. In 1910, it was remodeled to include wings on either side maintaining the symmetrical double-pile plan (two rooms deep with a central passage). The home was purchased by the City of Radford and renovated into classrooms in 1939. After that time, it stood vacant for a while but is now under renovations to be a headquarters the Radford City Schools Partners for Excellence Foundation. It was listed on the National Registrar of Historic Places in 2002. Examining the exterior façade and similar homes in the area played an important role in the digital restoration of the Arnheim. One of the distinguishing features of the Federal / Greek Revival style is the use of exterior moldings and classical columns. A set of hand drafted plans from the time when the home was renovated into the school, photos taken at the site, and a few remaining old photos were used as the basis for the re-creation of the home using 3D software. Perspective renderings of the dining room, the parlor, and a bedroom were created as well as an exterior model of the home.

Zachary King

Capstone mentor: Hooshang Beheshti, Management

Operational Efficiency Analysis of Attendance Tracking Processes at the Tyson Foods Glen Allen Poultry Processing Facility

The Tyson poultry processing facility in Glen Allen, Virginia employs around 750 team members between its first and second shifts. Keeping up with attendance for such a large number of employees poses quite a challenge, and therefore the Human Resources department uses a combination of automated, Human Resources Information Systems, and manual data entry to track employees attendance. An operational efficiency analysis is beneficial because it provides Tyson with the opportunity to innovate processes and make them easier and less costly to implement. During my time spent as an intern in the facility's Human Resources department, I had the opportunity to directly observe the processes performed by various employees to track the attendance of the facility's many team members. Attendance tracking currently relies heavily on manual input of data, and this results in the Human Resources Specialists using most of their time during the day to track employee attendance. In this project, I provide a history of both the Human Resources Function and Tyson Foods, outline the attendance policy used by at the Glen Allen Facility, examine the processes used by the Human Resources Department, analyze the cost of the processes, compare the processes to those of a competitor, and then explore alternatives to the current processes employed by the department. Ultimately, I recommend the use of a HR Information System that involves more automation in the processes that track employee attendance would cut down on the time required of the Human Resources department employees.

Amy Smith

Capstone mentor: Caleb Adams, Mathematics/Statistics

Flipping the Praxis

To address the "millennial" student in the collegiate atmosphere, active learning is becoming more prevalent. One manner of active learning that is starting to take hold at Radford University is the flipped classroom. The flipped classroom changes the structure of the atypical lecture class by having students watch pre-recorded video lectures at home and participate in student-centered activities during class meetings. In order to obtain teaching licensure in mathematics in the state of Virginia, all students must pass a series of tests with the last one being the Praxis II: Mathematics Content Knowledge (5161). Since the test revision in 2014, many Radford University students struggle to obtain the requisite score for licensure. The project presented is an initial look on how flipped learning may be helpful to this population in their quest for a passing score on the Praxis II. Additionally presented is a personal review of the process of flipping for the first time.

Kelci Falls

Capstone mentor: Niels Christensen, Psychology

Perceptions of Self-Control

People who have high self-control are more responsible, trustworthy, and happier than those with low self-control. In the workplace, employers prefer to hire applicants with high self-control because they are likely to refrain from counterproductive workplace behaviors and interpersonal aggression. However it is unclear whether individuals possess the ability to make accurate inferences about others' self-control based on brief social interactions. The current study examined whether multiple raters agreed on their perceptions of other people's self-control. Data were collected from 24 four-person groups of undergraduates who had brief interactions with each other. Participants completed an icebreaker task and then rated themselves and every other group member on a standardized measure of self-control. The Social Relations Model was used to analyze the data. These analyses revealed minimal evidence for consensus in ratings of others' self-control. That is, people did not agree on who had higher or lower self-control. In contrast, strong evidence suggested that a person's perceptions of others' self-control was correlated with self-perceptions of self-control. In other words, participants seemed to project their self-rating of self-control onto how they perceived others. Last, individuals were likely to rank others as having significantly higher self-control than themselves. Taken together, the results suggest that participants did not have an especially accurate perception of others' self-control. Rather, these undergraduates rated others as they rated themselves, except somewhat more positively. These results have implications that employers cannot trust their intuition about a person's self-control based on brief interactions and should use other psychometrics instead.

Sarah Stroop

Capstone mentor: Brenda Tyler, Teacher Education and Leadership

Dyslexia For A Day

For my Capstone project, I wrote a 14 page paper on dyslexia and the accommodations and remediation that can be used in the general education classroom. Dyslexia is a common, persistent, neurologic disorder that affects one in five student's ability to decode words. It is essential for elementary teachers to be aware of the components of dyslexia so that at risk students can be identified early before low self-esteem sets in. Multisensory remediation is the first step in helping these students. Accommodations can then be added to allow the students to function at their cognitive level instead of their reading level. Necessary accommodations can include the use of a computer, audiobooks, text to speech software such as Kurzweil 3000, keyboarding, vocal recognition software such as Dragon Naturally Speaking, the ability to respond to questions and tests orally and extra time for tests and assignments. An empathic teacher is another necessary piece to the success of a student with dyslexia. For the other part of my project, I gave an interactive lecture called dyslexia for a day, to undergraduates studying to become teachers. The lecture consisted of several simulations that allowed the teachers to feel what life is like for students with dyslexia. All teachers should undergo instruction in what it is like to have a disability, so they can better understand their students better.

Jessie Bass

Capstone mentor: J. P. Barfield, Health and Human Performance

The Effect Of Physical Activity On Balance Regression In The Aging Body

Proprioception is a sense of body positioning that is essential for effective interaction with the environment. More specifically, it is a subconscious sense of perception of body position in space, especially its limbs (Duman, Taskaynatan, Mohur, and Tan, 2011). Age affects proprioception, specifically through its effect on balance (Skinner, Barrack, & Cook, 2004). What is less clear, however, is how physical activity affects age-related declines. Therefore, the purpose of this study was to analyze differences in balance between active and inactive older adults. Methods: Twenty-seven adults (Age = 55.8 + 10 years) with no hip, knee, or ankle injuries were recruited for this study. IRB approval was obtained. The Berg Balance Scale (BBS) was used to assess independent balance on varied standing, sitting, and reaching tasks. The scale includes 14 test items of varying difficulty and each item is scored from 0 to 4, with 0 reflecting no function and requiring assistance, and 4 reflecting total function where the participant is able to complete independently. At a local adult exercise facility, the primary investigator assessed physical activity minutes and BBS score for each participant in 10 minute intervals. Descriptive statistics and individual group t-tests were then used to compare balance score differences between active and inactive participants. In order to be classified as active, the participant must have participated in one moderate activity and two vigorous activities a week. Results: The active participants had a 13% higher BBS score (52.4 + 2.6 vs. 46.4 + 8.2) than inactive participants. This finding was confirmed when participants were matched by age (Age = 55.7 years for both groups, BBS = 51.7 + 3 vs. 44.7+ 8). Discussion: Findings from this study support the importance or influence of physical activity on reduced balance loss and therefore proprioceptive loss in older adults.

Sara Cooper

Capstone mentor: Danah Bella, Department of Dance

Expansion: A Study of Dance and Words

This project demonstrates connections between written words and movement. It explores through dance the varied definitions of words and the way that words can transform and manifest themselves. It also finds the correlation between literal written documents – sentence structure, paragraphs, and even punctuation - and the choreographic process. Throughout the creative process, this correlation serves as a base from which to create movement; for example, each completed phrase of movement can be considered a sentence, pauses are representative of punctuation, and pieces are similar to paragraphs. The initial public presentation of this project, "Expansion: A Study of Dance and Words", reached a wide audience and demonstrated that movement can as easily share a story or influence an emotion as written word can. Many audience members asked perceptive questions about the emotions or stories behind the pieces, and often, the same viewers had their own unique perspectives and reactions to the movement. Further presentations and discussions on this project include video clips of the movement and choreography created from this study, as well as examples of the connections formed between written word and movement. Additionally, they break down the creative process and discuss the audience members' reactions to the presentation of the project.

Brittany North

Capstone mentor: Political Science, Dr. Theresa Schroeder

Analysis of the Syrian Refugee Crisis and the United States' Response

This analysis will argue that the United States should reconsider its response to the Syrian refugee crisis based on the United States' humanitarian obligation, available resources to aid refugees, and its set precedent of protecting human rights and liberties for all. This paper will begin with discussing the history of the Syrian refugee crisis and the human rights abuses of the al-Assad regime. Then the analysis will delve into the international world's response, with a special focus on the United States This will be followed by policy recommendations for the United States based off of successful refugee resettlement programs.

Shannon Roller

Capstone mentor: Donna and Cliff Boyd, Anthropology/Forensic Science Institute

Pediatric Healing Standards Based on Microscopic Analysis of Fractures in Child Abuse Cases

Substantiation of abuse charges in child death investigations often relies on documentation of a pattern of prior, non-accidental injury. Evidence of multiple antemortem (preceding death) bone fractures renders assertions of accidental injury less likely. Critical to this process is the ability to recognize and date these antemortem fractures based on degree of healing. Previous studies of fracture healing rates have been primarily based on radiographic (X-ray) images of bone. A comparison of the resulting healing phases and rates reveals inconsistencies in their terminology and definition, in part due to reliance on clinical (non-forensic) samples. Researchers (Prosser et. al. 2005) have reported that radiographic methods for fracture dating have been found to be subjective. Klotzbach and associates (2003) performed a study on fatal child abuse victims and found that alternative methods to radiography were more accurate for identifying antemortem fractures. This study seeks to create a more accurate antemortem fracture healing staging system based on high-quality microscopic digital imaging of dry bone. In this study, 992 images taken from a digital light microscope (Keyence VHX-1000) at 5 – 200x magnification, representing 61 fractures from seven known cases of pediatric death from child abuse, are assessed for microscopic evidence of the healing process. These images are used to elucidate the healing process and develop microscopically-based standards for bone healing. Based on this analysis, we conclude that antemortem healing is a continuous process and that stages, as defined, should be used as an interpretive model representing this continuous process.

Nathan Pirino

Capstone mentor: Georgia Hammond, Biology

Examining the Effects of Bacteriocins on Bacterial Metabolism of Arsenic in the Environment

The Brinton Arsenic Mine in Floyd, VA provides a unique opportunity to study environmental bacteria and their mobilization of arsenic compounds in the environment. These microbial processes involve conversion between different forms of arsenic, the two most prevalent being arsenate (AsV) and arsenite (AsIII). Both types of compounds interfere with protein function and metabolic processes in humans and bacteria alike. Our work is aimed at isolating and identifying bacteria that have important impacts on concentrations of environmental arsenic and determining their arsenic-resistance gene repertoires. Furthermore, we are designing a laboratory model system in which we use bacteriocins to reduce bacterial production of these toxic forms of arsenic. Bacteriocins are proteins secreted by bacteria to inhibit the growth of competitive species. Using bacteriocins to eliminate bacteria that contribute to the mobilization of arsenic in the environment can be a significant step towards reducing the amount of arsenic that reaches surface and ground water systems.

Isaac Weston

Capstone mentor: Dr. Joseph Chase, Information Technology

Social Engineering Prevention Password Generation

One of the most basic principles of software security is authorization of a user's identity before he/she can access the system. The most common form of authorization involves passwords: each user has an account on the system exclusive to that person, and in order to log into the account, the use must enter a specific password. However, the issue of weak passwords continues to be a common issue in the software security world. Too often, users will choose simple passwords that are easy for hackers to crack through the use of social engineering: using personal information about a particular user to determine his/her password information. It is for this reason that I choose to develop the Social Engineering Prevention Password Generator. Proposed to me by Dr. Joseph Chase, this program is designed to read in words that a user might use in his/her password, and create a secure yet easy to remember password using that information. Although testing on several different implementations is ongoing, the basic principle is that the program will randomly select words given as input, and conjoin them in a way that is easy to remember but difficult to crack. Though progress is still ongoing, development of the system has progressed significantly, and we are confident that upon completion, the Social Engineering Prevention Password Generator will prove to be not only be of great academic interest, but a useful program fit for public release.

Gabrielle Carraccio

Capstone mentor: Dr. Wendy Eckenrod-Green, School of Teacher Education and Leadership

Therapeutic Horseback Riding and Autism

Therapeutic horseback riding uses the multi-dimensional movement of the horse as treatment (Cuypers, DeRidder, & Strandheim, 2011). This type of therapy can be used to assist with some of the difficulties associated with particular disabilities (e.g. Autism Spectrum Disorder). Administering a therapeutic riding lesson is a trained team consisting of volunteers, the horse, and a certified riding instructor (Gabriels et al., 2011). The lesson is a comprehensive strategy that not only strives to improve physical or emotional goals, such as improved balance or increased happiness, but also positively affects daily activities, independence, and quality of life (Zadnikar & Kastrin, 2011). This is the main goal of therapeutic horseback riding: that the rider will function better off the horse, in their daily life (Cuypers, DeRidder, & Strandheim, 2011).

Tuesday, April 19th

Honors Academy Oral Presentations
Heth 043 1:00 pm-4:00 pm

Honors Academy Poster Session
Heth 043 4:00 pm-5:00 pm

Commodities and History Oral Presentations I
Heth 022 1:00 pm-3:00 pm

Center for Gender Studies Symposium
Heth 022 3:30 pm-6:15 pm

Graduate Studies Oral Presentations
Heth 014 3:00 pm-4:40 pm

Graduate Studies Poster Session
Heth 014 5:00 pm-6:00 pm

Biology Oral Presentations
Center for the Sciences M073 4:00 pm-6:15 pm

Biology Poster Session I
Center for the Sciences M Lobby 6:15 pm-7:15 pm

Biology Poster Session II
Center for the Sciences M Lobby 7:30 pm-8:30 pm

Honors Academy Oral Presentations

Angels and Demons: A Psychoanalysis of Personal Poetry

Jenna Roark

Faculty Mentor(s):	Louis Gallo	English
Tuesday, April 19th	Heth 043	1:00 pm-1:15 pm

For my Honors Capstone Project, I had to compile a book of poetry that I had written over the course of a year. Once my faculty mentor had proofread and edited this poetry, I compiled the final draft and published it for my faculty mentor to see. Once approved, I used the theories of Sigmund Freud and Carl Jung to perform a psychoanalysis of my own personal poetry, searching primarily for specific archetypes and imagery. These theories fall under the school of Psychoanalytic Criticism, which is a subset of Literary Theory and Criticism. Once the analysis was performed, I wrote a ten page paper that explained and defended my analysis, which showed that performing a psychoanalysis on one's own poetry is difficult, but provides insight to one's psyche.

The Anatomy of a Painting

Layla Dobos

Faculty Mentor(s):	Z.L. Feng	Art
	Cheng Fen Yeh	Art
Tuesday, April 19th	Heth 043	1:15 pm-1:30 pm

The purpose of this project is to inform the public about the amount of work that artists may go through to produce a successful painting. As an artist myself, I aim to show my own process that I have developed specifically during my four years of undergraduate study in watercolor painting here at Radford University. In a way that is similar to my artwork, I will take my viewers on a visual journey. This time, however, I will be filming each step, with the end product being a time-lapse video and a painting. This video will show the entire process that I have developed—from building the cradle that holds the panel, to permanently sealing the finished result.

Touch DNA in Criminal Justice

Helen Currant

Faculty Mentor(s):	Tod Burke	Criminal Justice
	Stephen Owen	Criminal Justice
Tuesday, April 19th	Heth 043	1:30 pm-1:45 pm

Touch DNA comes from skin cells that are transferred when a person touches or handles an object. Recent advances in science have enabled touch DNA to become a crucial element in solving both criminal and civil cases. However, the likelihood of contamination increases when smaller DNA samples are required to form a genetic profile. A type of contamination that can occur is secondary DNA transfer which takes place when genetic material is transferred from one individual to another and then onto an object. The possibility of secondary DNA transfer decreases the reliability of forensic evidence and its importance at trial. The purpose of this presentation is to address policy implications in criminal justice in regards to touch DNA and secondary transfer touch DNA.

Honors Academy Oral Presentations

Dyslexia For A Day

Sarah Stroop

Faculty Mentor(s):	Brenda Tyler	School of Teacher Education and Leadership
Tuesday, April 19th	Heth 043	1:45 pm-2:00 pm

My Capstone project consisted of two very different tasks. I researched and then wrote a 14-page paper on dyslexia and evidence-based remediation practices and accommodations that can be used for students with dyslexia in the general education classroom, and I also conducted dyslexia simulations with undergraduate students. Dyslexia is a common persistent neurologic disorder that affects the ability of one in five students to decode words; it can also affect students' writing, spelling, and math skills. It is essential for elementary teachers to be aware of the components of dyslexia so that at-risk students can be identified early, before low self-esteem sets in. Multisensory remediation is the first step in helping these students. Accommodations can then be added to allow students to function at their cognitive level instead of their reading level. Accommodations include the use of a computer, audiobooks, text-to-speech software such as Kurzweil 3000, keyboarding, vocal recognition software such as Dragon Naturally Speaking, the option to respond to questions and tests orally, and extra time for tests and assignments. An empathetic teacher is another necessary element to the success of a student with dyslexia. For the other part of my project, I gave an interactive lecture called Dyslexia for a Day to undergraduates studying to become teachers. Pre-professional teachers participated in several activities--dyslexia simulations--that allowed them to feel what school is like for students with dyslexia. All teachers should experience what it is like to have a disability so they can better understand their students.

Illustrating Change: Turning the Page to Sustainable Living

Alyssa Pull

Faculty Mentor(s):	Ken Smith	Art
Tuesday, April 19th	Heth 043	2:00 pm-2:15 pm

As consumerism and technology have progressed, the topics of environmentalism and sustainability have grown to accommodate such societal changes. However, these philosophies and ideologies remain controversial and are relatively unknown to most. To overcome the environmental challenges faced by an apathetic population, education is the key to raising awareness for these issues in hopes to foster positive sustainable change. Since antiquity, books have been a keystone to dispersing knowledge. However, in the modern age of digital technology, their physical form has been challenged. Form and function are juxtaposed as this capstone continues the narrative, using the physical form of the book as an educational communication tool, while utilizing the function of digital graphic design technology to develop informative contents. With this in mind, this distinct format aims to create a unique dialogue for greater discussion by fostering the conversation between the reader and the designated topics within sustainability. For this capstone, an illustrated series of five short stories is created to explore the topic of sustainable living. To foster the development of lifelong habits in sustainable living from an early age, the books are specifically targeted toward the natural curiosity of children around age five. Centering on the subjects of water conservation, energy reduction, waste elimination, habitat preservation, and sustainable food sources, the set of books intend to be both thought provoking for adults, while visually stimulating for children, allowing a universal discussion between all generations and populations alike.

Honors Academy Oral Presentations

Illustrating Change: Encouraging Inquiry into Alternative Energies

Jacob Hardbower

Faculty Mentor(s):	Kenneth Smith	Art
Tuesday, April 19th	Heth 043	2:15 pm-2:30 pm

The world is experiencing a period of technological and societal advancement that has altered almost every aspect of American life. Part of this new era is a declining dependency on fossil fuels courtesy to innovative systems for renewable energy. Each year, the growing benefits of alternative energies make it more enticing to consumers looking for a way to cut down on costs and aid the planet. A large part of why these technologies are not growing even more rapidly is education. While gaining steam, the movement toward alternative energies could be stronger if people started questioning the ways in which we source energy today. / Research has shown that elementary aged children have this yearning – to know the meaning and reason behind ideas and actions. Leveraging this natural desire for answers, this capstone targets children around the age of five with material designed to garner inquiry into America's energy sources. Through the detailed production of a series of five illustrated short stories, the capstone intends to show fictional representations of real-life technologies and their benefits. The narratives of the stories run parallel to the U.S. energy issues, encouraging children to bring up problems and solutions with a teacher or parent and inspiring them to be innovators. Each story focuses on a different energy source relating to one of the following real-world technologies: wind power, hydropower, geothermal energy, solar power, and bioenergy.

Operational Efficiency Analysis of Attendance Tracking Processes at the Tyson Foods Glen Allen Poultry Processing Facility

Zachary King

Faculty Mentor(s):	Hooshang Beheshti	Management
Tuesday, April 19th	Heth 043	2:45 pm-3:00 pm

The Tyson poultry processing facility in Glen Allen, Virginia employs around 750 team members between its first and second shifts. Keeping up with attendance for such a large number of employees poses quite a challenge, and therefore the Human Resources department uses a combination of automated, Human Resources Information Systems, and manual data entry to track employees attendance. An operational efficiency analysis is beneficial because it provides Tyson with the opportunity to innovate processes and make them easier and less costly to implement. During my time spent as an intern in the facility's Human Resources department, I had the opportunity to directly observe the processes performed by various employees to track the attendance of the facility's many team members. Attendance tracking currently relies heavily on manual input of data, and this results in the Human Resources Specialists using most of their time during the day to track employee attendance. In this project, I provide a history of both the Human Resources Function and Tyson Foods, outline the attendance policy used by at the Glen Allen Facility, examine the processes used by the Human Resources Department, analyze the cost of the processes, compare the processes to those of a competitor, and then explore alternatives to the current processes employed by the department. Ultimately, I recommend the use of a HR Information System that involves more automation in the processes that track employee attendance would cut down on the time required of the Human Resources department employees.

Honors Academy Oral Presentations

Beauty of the Bay - Wicomico Church, VA

Patricia Atkinson

Faculty Mentor(s):	Ken Smith	Art
Tuesday, April 19th	Heth 043	3:00 pm-3:15 pm

For my capstone project, I decided to go back to my roots of painting and combine my knowledge learned as a graphic design major with the traditional art form. The Beauty of the Bay consists of a small series of acrylic paintings, with the subject matter pulled from Wicomico Church, VA, which is a town located off of the Chesapeake Bay and the Wicomico River. Wicomico Church has been a very influential part of my life. I have grown up visiting my grandparent's river house there and years ago my parent's bought a river house too. This has given me the love for the water, the beach, etc., and it has also had a major influence on my art, specifically my love for nautical themes. These paintings are done in a realistic style, to attempt to capture the beauty behind the imagery itself. They are not intended to evoke any kind of deep emotion or feeling. The reason behind the paintings is solely to produce art that is aesthetically pleasing and incorporates something personal for me. Unlike a fair amount of nautical and beach paintings, they are not painted with the intention to sell; they are created "for the artist." The creative process for this project has been difficult. There have been many challenges, such as what subject matter to choose, what looks best together as a series, needing to refresh my painting skills and techniques, and more. So, I figured out how to adapt my process to come up with a project as close to my original vision as possible. As many of us know, our original ideas tend the change and evolve as time passes and we start working through them. Change and challenges are to be embraced and overcome to enhance the artistic process and end result.

Molecular Modeling of the Binding of the Z-77 Inhibitor with the Bacterial Loop of E. coli Beta-glucuronidase

Hannah Gullickson

Faculty Mentor(s):	Kimberly Lane	Chemistry
Tuesday, April 19th	Heth 043	3:15 pm-3:30 pm

The activity of some bacterial forms of beta-glucuronidase are associated with side effects observed with the administration of the chemotherapy drug CPT-11, a pro-drug for the topoisomerase inhibitor SN-38. In the liver, SN-38 is modified with a glucuronide group to produce less toxic SN-38G. In the large intestine, reactivation to SN-38 occurs when beta-glucuronidase cleaves the glucuronide group from SN-38G, leading to severe gastrointestinal damage and diarrhea. Recently, a new generation of inhibitors, including Z-77, have been shown to decrease this damage associated with CPT-11 dosage. These inhibitors interact with a loop found near the active site of the enzyme. This loop is necessary for inhibitor binding in bacteria, but does not exist in the human form of the enzyme, allowing specific targeting to bacterial species of beta-glucuronidase. F365 in this loop has been shown to make direct stacking interactions with the Z-77 inhibitor. To determine the importance of this residue in the binding of Z-77, mutations of F365 to alanine, leucine, tyrosine, and tryptophan were made using ICM-Pro from Molsoft, LLC and docking studies were performed to predict the thermodynamics of inhibitor binding. Molecular changes to the Z-77 to determine the pharmacophores were also performed and characterized by docking studies using this software. The results of these studies will hopefully guide future structure based drug design.

Honors Academy Oral Presentations

Flipping the Praxis

Amy Smith

Faculty Mentor(s):	Caleb Adams	Mathematics and Statisitcs
Tuesday, April 19th	Heth 043	3:30 pm-3:45 pm

To address the "millennial" student in the collegiate atmosphere, active learning is becoming more prevalent. One manner of active learning that is starting to take hold at Radford University is the flipped classroom. The flipped classroom changes the structure of the atypical lecture class by having students watch pre-recorded video lectures at home and participate in student-centered activities during class meetings. In order to obtain teaching licensure in mathematics in the state of Virginia, all students must pass a series of tests with the last one being the Praxis II: Mathematics Content Knowledge (5161). Since the test revision in 2014, many Radford University students struggle to obtain the requisite score for licensure. The project presented is an initial look on how flipped learning may be helpful to this population in their quest for a passing score on the Praxis II. Additionally presented is a personal review of the process of flipping for the first time.

Sport Participation and its Association with Alcohol Related Behavior

Katelynne Seager

Faculty Mentor(s):	Dr. David Sallee	Health and Human Performance
Tuesday, April 19th	Heth 043	3:45 pm-4:00 pm

Sport participation and its association with alcohol related behavior is of particular interest, especially in regard to current research linking the practice to risky behaviors including increased alcohol consumption at a higher frequency. The goal is to provide additional support for the research behind sport participation and its association with alcohol related behaviors. Furthermore, to educated and inform parents, teachers, and coaches the correlation between sports participation and its association with alcohol related behaviors in order to prevent and or decrease the correlation.

Honors Academy Poster Session

A Inquiry on the Historical Restoration of Radford's Arnheim

Maggie Bebel

Faculty Mentor(s):	Julie Temple	Design
Tuesday, April 19th	Heth 043	4:00 pm-5:00 pm

This senior capstone project involves the study of a local, Radford, Virginia home and the digital restoration of the property as it may have existed when Dr. John Blair Radford had it built for his family in 1838. Fashioned in the Federal Greek Revival style of architecture popular at the time, this estate, named Arnheim (German for "home of the Eagle"), is located overlooking the New River, adjacent to the current high school. In 1910, it was remodeled to include wings on either side maintaining the symmetrical double-pile plan (two rooms deep with a central passage). The home was purchased by the City of Radford and renovated into classrooms in 1939. After that time, it stood vacant for a while but is now under renovations to be a headquarters the Radford City Schools Partners for Excellence Foundation. It was listed on the National Registrar of Historic Places in 2002. Examining the exterior façade and similar homes in the area played an important role in the digital restoration of the Arnheim. One of the distinguishing features of the Federal Greek Revival style is the use of exterior moldings and classical columns. A set of hand drafted plans from the time when the home was renovated into the school, photos taken at the site, and a few remaining old photos were used as the basis for the re-creation of the home using 3D software. Perspective renderings of the dining room, the parlor, and a bedroom were created as well as an exterior model of the home.

Modeling the Impact of Migration on Cholera Outbreaks

Sarah Rainey

Faculty Mentor(s):	Arietta Fleming-Davies	Biology
Tuesday, April 19th	Heth 043	4:00 pm-5:00 pm

The effects of migration on disease transmission are largely unknown. Mass migration into one area creates high density and a struggle for resources. Refugee camps possess these conditions, which enable infectious diseases like cholera to thrive. Cholera is a devastating waterborne illness caused by the bacterium Cholera vibrio that can kill an untreated individual within 24 hours. It is persistently epidemic in areas that do not have access to clean water and proper sanitation. This study mathematically models cholera in order to measure the effect of migration from a home country into refugee camps on disease transmission. Model parameters were varied in order to determine which conditions led to an outbreak, how many individuals were affected, and if the Cholera vibrio remained present in the environment after the initial outbreak. The dynamics of cholera outbreaks were simulated using an SIR differential equation model, using parameters from prior published data. The model was run at various migration rates () = .005, .02, .1, and levels of camp sizes, from 1,000 to 100,000 refugees. The preliminary results of the study show that refugee camp size has a greater impact on disease transmission than migration rates. The larger capacity refugee camps had an increased number of individuals infected and the pathogen remained at higher levels in the environment longer. The findings suggest that maintaining refugee camp sizes below 6,000 individuals would be an efficient way to manage and minimize the disease spread.

Honors Academy Poster Session

Comparative Histology of the Oral Mucosa of Snakes

Jacob Vaught
Rachael Epperly

Faculty Mentor(s): Matthew Close Biology
Tuesday, April 19th Heth 043 4:00 pm-5:00 pm

The snake tongue has been modified for the detection of volatile chemicals, and has subsequently lost sensory papillae found on tongues of many other animals. The oral mucosa of snakes, however, contains sensory papillae that possess both taste and touch receptors, but relatively few studies have been published on the comparative anatomy of the snake oral mucosa. Because snakes vary greatly in terms of their skull morphology, we asked the question whether there would be differences in touch and taste receptor distribution and composition across several snake lineages. We compare the gross anatomy and histology of the oral mucosa across four families (Pythonidae, Boidae, Viperidae, and Colubridae) and describe the concomitant changes that have occurred as different modes of prey acquisition have evolved. Our preliminary results show that the relative position of sensory papillae is similar across snake taxa, but there may be differences in papillae density in advanced snakes.

Body Image and Behaviors Related to Disordered Eating

Danielle Bishop

Faculty Mentor(s): David Sallee Health and Human Performance
Tuesday, April 19th Heth 043 4:00 pm-5:00 pm

The impacts of body disassociation and its effect on adolescents relating to onsets of sexuality and weight management strategies is of particular interest. This is predominantly in regard to current research linking body dissatisfaction associated in adolescents with body mass, low self-esteem, and abnormal eating habits. The purpose of this research is to identify the relationships between pubertal maturation, weight management strategies, and the development of social comparison processes that begin to trigger a heightened awareness of one's physical appearance and body image concerns during the transitions from early to mid-adolescence. The goal of this research is to show and provide additional support for the theory that body dissatisfaction in adolescents is correlated with onsets of sexuality and weight management strategies which may include the use of diet pills, forces of diet (fasting, vomiting, laxatives, etc.) and to look at its effects based on gender differences. Data used for this research was drawn from communities in Southwest Virginia in order to reveal and compare odds ratios and cross tabulations. Sharing this information could be valuable for the creation of informative lessons or prevention practices for students on campus as well as the larger community.

Mindfulness and Social Media Use

Cynthia Wenger

Faculty Mentor(s): Jeff Willner Psychology
Tuesday, April 19th Heth 043 4:00 pm-5:00 pm

Social media use has increased dramatically in recent years, but there is still much to be learned about the factors influencing people's use of social media. Previous studies have shown that many of the variables that are correlated with social media use (e.g., anxiety) are also correlated with mindfulness (awareness and attention to one's thoughts, emotions, and environment), suggesting that mindfulness and social media use are related to one another. The participant pool for this study was composed of Radford University students. This population was ideal because social media use is highest among young adults, ages 18 to 28. Here, we used a survey to obtain measures of overall social media use, as well as use of the three most commonly used social media platforms (Facebook, Twitter, and Instagram). Participants also completed questions about demographics, the Mindfulness Attention and Awareness Scale, and the State-Trait Anxiety Scale. Data exploring the relationships between social media use, mindfulness, and anxiety will be reported. If our hypotheses are correct, participants with higher mindfulness scores will report lower use of all forms of social media, experience lower levels of anxiety, and have higher GPAs.

Honors Academy Poster Session

Public Relations and Philanthropy: An Autoethnography

Tommy Morgan

Faculty Mentor(s):	Lisa Baker-Webster	Communication
Tuesday, April 19th	Heth 043	4:00 pm-5:00 pm

The purpose of this autoethnography is to provide qualitative research about the impact public relations has on philanthropic endeavors. By utilizing my personal experience with establishing a philanthropy for my fraternity, Phi Sigma Pi, it brings a larger sociological understanding to the effects the field of public relations has on being successful in philanthropy. This poster presentation will present the findings from over a year of qualitative research from personal experience I had when establishing a formal relationship between my fraternity and the philanthropic organization, Project Discovery. The expectation is that the information presented will allow other young communication professionals to be successful in the nonprofit or charitable sectors of the field. Additionally, through the use of communication theory, such as the narrative theory, I can illustrate how autoethnography is a form of meaningful communication. This personal insight into the struggles and successes of utilizing public relations to develop philanthropic relations will create a guide for future communication professionals hoping to achieve similar goals.

Adaptive Sport Outcomes Among Athletes with Spinal Muscular Atrophy

Carter Jenkins

Faculty Mentor(s):	Auguste Barfield	Health and Human Performance
Tuesday, April 19th	Heth 043	4:00 pm-5:00 pm

An adaptive sport is any sport or Olympic event in which the rules or objectives have been modified to meet the needs of athletes with disability. The benefits of physical exercise are numerous and easily observed. The purpose of this literature review is to determine the outcomes of participation in adaptive sports, specifically pertaining to athletes with Spinal Muscular Atrophy (SMA). SMA is a genetic motor neuron disease that, in time, will cause the denervation of skeletal muscles leading to atrophy and weakness. The outcomes observed in this study cover several aspects of life. The review focuses on the outcomes in the following fields: psychosocial, aerobic fitness, muscular strength and fitness, and balance/flexibility. All of these fields were chosen carefully with regards to the symptoms and everyday challenges experienced by a person with SMA. The outcomes may be positive or negative, as this review is designed to account for as many known outcomes of adaptive sport as possible. Although the majority of the outcome fields relate to the physicality of the human body, the psychosocial outcomes of adaptive sports are quite expansive. The amount of research on this topic is relatively small, and much more needs to be done in the future.

Introductory Robotics for Education

Alex Paragas

Faculty Mentor(s):	Andrew Ray	Information Technology
Tuesday, April 19th	Heth 043	4:00 pm-5:00 pm

Ever wondered how robots actually worked? Have you have ever wanted control one before? Our work centers on the creation of several robots to investigate how they might be used in existing computer science courses. The major goal of the study is an introduction to robotics and to provide this opportunity for students in their first semester courses. Current courses typically do not have a connection to the real world, whereas this study enables students to see a tangible link between their abstract code and the real world. Prior research has shown increased success when this opportunity is afforded students in their introductory courses. Initial work has dealt with a prototype for basic movement and evolved into a path following robot. The path following robot follows a pre-existing pathway in order to carry objects around. Current work is focusing on developing a robot that can navigate a maze like environment. Future work will focus on specialized movement beyond driving. A report detailing what has been created and what is required of students in introductory courses will be produced at the end of the study. Professors will be able to take this report and have a supply of ready-made projects and resources for their students.

Honors Academy Poster Session

Perceptions of Self-Control

Kelci Falls

Faculty Mentor(s):	Niels Christensen	Psychology
Tuesday, April 19th	Heth 043	4:00 pm-5:00 pm

People who have high self-control are more responsible, trustworthy, and happier than those with low self-control. In the workplace, employers prefer to hire applicants with high self-control because they are likely to refrain from counterproductive workplace behaviors and interpersonal aggression. However it is unclear whether individuals possess the ability to make accurate inferences about others' self-control based on brief social interactions. The current study examined whether multiple raters agreed on their perceptions of other people's self-control. Data were collected from 24 four-person groups of undergraduates who had brief interactions with each other. Participants completed an icebreaker task and then rated themselves and every other group member on a standardized measure of self-control. The Social Relations Model was used to analyze the data. These analyses revealed minimal evidence for consensus in ratings of others' self-control. That is, people did not agree on who had higher or lower self-control. In contrast, strong evidence suggested that a person's perceptions of others' self-control was correlated with self-perceptions of self-control. In other words, participants seemed to project their self-rating of self-control onto how they perceived others. Last, individuals were likely to rank others as having significantly higher self-control than themselves. Taken together, the results suggest that participants did not have an especially accurate perception of others' self-control. Rather, these undergraduates rated others as they rated themselves, except somewhat more positively. These results have implications that employers cannot trust their intuition about a person's self-control based on brief interactions and should use other psychometrics instead.

Analysis of Corticotropin-Releasing Factor in the Amygdala of Rats following Human Interaction During Adolescence

Amanda Dixon
Diamond Cooper
April Tingle

Faculty Mentor(s):	Dayna Hayes	Psychology
	Sarah Redmond	Biology
Tuesday, April 19th	Heth 043	4:00 pm-5:00 pm

Human interaction during animal research is a necessary component of data collection. However, it is often overlooked as a potential confounding variable during data interpretation. Depending on the researcher and the manipulation, this interaction could be calming or stressful for the animal yet no research has systematically investigated the effects of experimenter interaction on the stress response system in rats. Thus, this study examines a marker of stress in the brain of adolescent rats after being exposed to varying levels of human interaction during adolescence. Twenty-eight female, adolescent Sprague-Dawley rats were assigned to one of four interaction conditions: Tickled, Playful, Restraint, and Control. Following behavioral interactions, animals were perfused and brains extracted for neurobiological analysis. Brains were sliced and will be stained via immunohistochemistry (IHC) for Corticotropin-Releasing Factor (CRF) reactivity in the amygdala, a region associated with stress and emotionality. CRF is a primary component of the hypothalamic-pituitary-adrenal axis (HPA axis), also referred to as the stress axis. It is hypothesized that the restraint condition will have higher CRF immunoreactivity (IR), and the tickled and playful groups will have less CRF-IR in the amygdala than controls. If the method of human interaction is determined to be a confounding variable, future animal research would have to adjust accordingly in order to minimize the effects of this interaction. These results could also have a practical application to the interaction human adolescents have with other humans during that developmental period.

Commodities and History Oral Presentations I

Floral Industry in the Context of Commodities

Alexander Vargas

Faculty Mentor(s):	Brock Cutler	History
Tuesday, April 19th	Heth 022	12:30 pm-12:45 pm

I will be giving you a tour inside the chain of one of the most lucrative and trending industries seen in today's market. With a focus on the US market I will show how this product has blossomed into a six billion dollar industry, employing over eighty thousand people and giving small business all over the country a lucrative product. This is best known today as, the floral industry. I will discuss the wonders of this nature product by examining how it grew from only a seasonal product to something made readily available to consumers all year round. How did this once luxury for the wealthy become available in the everyday homes of the poor and middle class Americans? How did flowers become so closely associated with the holidays and events? Was it the outcry for more flowers that sparked the demand or was it the surplus of supply that allowed the demands to be adequately met? In particular we will discuss two of the most popular flowers, the rose and the tulip. I will expand upon their delicate history with a focus on their social and economic effects. We will see why roses are grown in Kenya and Columbia. Venturing down to South America together we will peak into the intricate system of labor. We will investigate the process of transportation and warehousing. Focusing mainly on the race against time and maintaining the flowers at perfect temperature. We will get to know the people who plant, grow and export these flowers. In our endeavor to find the root of the floral industry we shall seek out the people or perhaps the nations who make this product available to the masses.

KohiNoor: In Search of the Mountain of Light

Abbie Queener

Faculty Mentor(s):	Brock Cutler	History
Tuesday, April 19th	Heth 022	12:45 pm-1:00 pm

The crown jewels of the United Kingdom have fascinated and beguiled a thousand onlookers and tourists as they are put on public display at the Tower of London for the past twenty-two years since 1994. Grand, opulent, they symbolize themselves as the most astounding and beautiful collection of jewelry and stately ornaments in the world. Today there is one peculiar and extravagant jewel sitting nestled in the Queen Mother's Crown that still causes a still of controversy and arguments about who does own this precious piece of stone: the Koh-i-Noor Diamond. Known as the Mountain of Light, the Koh-i-Noor is the world's largest diamond hailing from the diamond mines in Golconda, India and has an illustrious glittering history. It was the jewel that symbolized the Mughals' power, it has been fought and cursed, over, lost would have a different owner in each decade until ended up in the hands of ambitious British agents and courtiers to present as a present to Queen Victoria after the British conquest of Punjab in 1849. This research paper discusses and consults into the elusive diamond's history, the mines of whence it came and the process of diamond mining and it's workers, and the diamond's current conflicts and future as Pakistan, India, and the United Kingdom fight and claim its ownership.

Commodities and History Oral Presentations I

Bed, Bath, and Beyond: Foreign Relations and the Linen Trade in Tudor England

Denise Jenkins

Faculty Mentor(s): Brock Cutler History
Tuesday, April 19th Heth 022 1:00 pm-1:15 pm

Linen was an important commodity in Tudor England for the rich and poor alike. It was worn close to peoples' bodies, it was used in bedding, and it was even used in funerary practices. People were enveloped by linen from the time of birth until death. I want to focus on the effect that the linen trade had on Tudor England, paying particular attention to foreign relations and policy. I will follow the linen commodity chain from flax growth, linen production, the trade in linen, linen use, and the effect of the linen trade with other countries. I plan to use historic records, household accounts, journals, trade documents, scholarly articles, and other such literature to provide source material for my paper. I was interested in this topic because of my interest in historic fashion and textile crafts. Linen was also such a versatile fabric with such a rich history. I wanted to research a topic having to do with the late medieval era in the British Isles, and the linen trade brought up some interesting questions. Where did the British get their linen? Who used linen, and how available was it? What was the effect of the linen trade on relations with other countries? I wanted to answer these questions for myself, as well as explore them in a paper. I would like to continue on the path of the effect that linen had on English foreign relations in Tudor England.

Chocolate

James Via

Faculty Mentor(s): Brock Cutler History
Tuesday, April 19th Heth 022 1:15 pm-1:30 pm

In today's world chocolate is everywhere. It is another basic commodity and necessity that exist today and is taken for granted. Most people do not know the history behind chocolate and how it has evolved to what it is today. When people think of chocolate they think of chocolate bars that come in a solid form mixed with milk and sugar, but only in the past 200 years has chocolate been consumed this way. Chocolate has been around for thousands of years dating all the way back to the indigenous Olmec civilization of Central America. The Olmec would grind cocoa seeds and add it to cold water, vanilla, and chili pepper. For thousands of years chocolate was consumed as a drink and served as a status symbol for the indigenous of Central and South America and for Europeans when it was brought to Spain and spread quickly through the elite class. The theme of this paper is the history of chocolate from when it was first domesticated, its production process, and its impact on indigenous, European, and American society socially and economically. The story will end when Chocolate became a solid form and became more widely used because of mass production made it evolve into a commodity available for everyone from a luxury only available for the elite.

Semtex: The Life and Times of the Provisional Irish Republican Army's Favorite Plastic Explosive

Tara Kontra

Faculty Mentor(s): Brock Cutler History
Tuesday, April 19th Heth 022 1:30 pm-1:45 pm

My topic is the commodity of Semtex, a plastic explosive, from its creation in Soviet Czechoslovakia, its temporary home in Gadhafi's Libya, and its use by the Provisional Irish Republican Army During The Troubles. In this project I argue that we can understand the full scope of PIRA violence by taking into account the material elements of those actions. To that end I will uncover the various links that brought plastic explosives from the factories of Czechoslovakia to the streets of London and Belfast, illustrating the global chain of production, circulation, and consumption. In order to research the commodity chain, I will be studying such things as the archives of The London Times, PIRA documents, the chemistry and resources involved in the creation and manufacturing of plastic explosives, and any sort of government documents I can get my hands on in order to learn more about the IRA's ability (or lack thereof, in some cases) to acquire and use these weapons.

Commodities and History Oral Presentations I

Conflict Minerals from the Democratic Republic of the Congo: The Richest Country's Demand and the Poorest Country's Costs

Caleb Sheets

Faculty Mentor(s):	Brock Cutler	History
Tuesday, April 19th	Heth 022	2:00 pm-2:15 pm

This research examines the commodity chain of conflict minerals from the Congo. After examining the commodity chain of conflict minerals, this research will focus on the production and the individuals who benefit. Conflict minerals are used in a variety of ways in common materials in the western world, most notably in electronics. The Democratic Republic of the Congo has had conflict within for the majority of its independence and militant groups have taken advantage of the Congo's resources by profiting. The workers who obtain the precious resources are subjected to slave-like labor and are the only individuals in the commodity chain who do not benefit . Though the Congo is rich in resources it is considered the poorest country in the world. How does a nation that has an abundance of lucrative minerals become the poorest nation that is in constant conflict? The Congo has a history of being used by more powerful countries with no regard to the citizens of the Congo. The materials that are so commonly used in the United States are typically used with no regard to the processes that went in to make them. Conflict minerals show the complete separation from the consumer and the human cost that are needed to make a product. While young teenagers in the United States are looking at their cell phones, young teenagers in the Congo are looking for minerals to build them.

Maize: Transformation of an American Staple

Alexander Pratt

Faculty Mentor(s):	Brock Cutler	History
Tuesday, April 19th	Heth 022	2:15 pm-2:30 pm

The intention of my History 495 paper is to chronicle the development of Maize within North America. Maize, Zea Mays, or just corn is one of the largest agricultural products that farmers produce in the United States. It plays a major part in the landscape of the American diet, but is not limited to just the dinner table. Corn is the United States largest agricultural product and according to the USDA only ten to twenty percent of the maize produced is exported. Maize is no longer a staple food among the people of the United States and it no longer comprises a large portion of most American meals. So where does the corn go? A fair percentage of corn is exported to the world at large, but the major uses of maize are directed at internal uses. Maize has become something of a wonder product in its role in ethanol. Ethanol replaces a portion of gasoline that is pumped inside of almost every motor vehicle in the Unites States. Corn is also the primary crop used as feed for livestock. Meat, unlike corn, makes up an incredible amount of how people consume food, and corn acts as the primary caloric provider to the livestock that later is consumed. The United States is one of the largest meat consuming countries in the world, Americans are consuming 500% more meat than in the early 20th century. All of this change is particularly based on maize's success.

Commodities and History Oral Presentations I

American Steel: Forging a Nation

David Higgins

Faculty Mentor(s):	Brock Cutler	History
Tuesday, April 19th	Heth 022	2:30 pm-2:45 pm

This presentation will examine the history of the American people through the lens of the Steel Industry at the turn of the century: think "The Men who Built America" for an idea of the time period covered. The principle argument I mean to present is that, through the advent of steel products and rapid industrialization, America's economic and political landscapes were totally reformed at the fundamental level. Capitalism was in full swing, and its rise was tied intimately with steel-wrought combustion-driven technology. Following on the heels of Industrialism, Americans began to look forward, and to re-define exactly what constitutes "The American Dream" (the quintessential "nuclear family" and similar cliches). As demand for steel rose, and the production of steel became more and more important, questions of labor troubled the American people, who now depended on steady factory-based employment. The story of steel is the story of modern America.

Tobacco in Appalachia

Joshua King

Faculty Mentor(s):	Brock Cutler	History
Tuesday, April 19th	Heth 022	2:45 pm-3:00 pm

In order to understand how the development and expansion helped to develop the New World, the commodity must first be analyzed at the micro level Having grown up in Patrick County, Virginia, tobacco has always been such a large part of everyday life for most of my community. Tobacco has been a large part of my families' history here, and I want to learn more about this product in this region. In this examination of tobacco, I will research documents provided from the library, the Reynolds Homestead (a plantation on the home place of RJ Reynolds), the RJ Reynolds Tobacco Company, and I plan to meet with someone from in the archives to see where I can find more primary sources. Conveniently enough, Radford University is placed in an area that lends itself well to agricultural research, due to its proximity to Viriginia Polytechnical Institute, and other historical societies—such as the Glencoe Museum; where more information can be found on the topic. Virginian tobacco is the largest commodity to have effected this region. The title of my paper will be Tobacco: The Catalyst of the Virginian Economy, and it will incite the reader by explaining what position it had in this state.

Center for Gender Studies Symposium

Center for Gender Studies Keynote: Dr. Shelly Wagers

Dr. Shelly Wagers is the founder of Internal Power®. She earned her Ph.D. from the University of South Florida, which is ranked as one of the top 10 programs in the nation for criminological and behavioral studies research. She is now an Assistant Professor in the Department of Criminal Justice at Radford University. Dr. Wagers has over 20 years of experience developing and delivering educational classes, workshops, and seminars in the areas of violence prevention and the development of healthy interpersonal relationships. The specific focus of her research and experience is on helping people understand the internal motives behind their behaviors, and how these can either enhance or obstruct their interpersonal relationships at home and in their career. The key to these motives and behavioral habits is Internal Power®.

Internal Power®: *Versus* Relationship Violence

Tuesday, April 19th Heth 022 3:30 pm-4:30 pm

To feel like we have power over our lives and the ability to control our outcomes is a basic universal human need. The assertion "the motive is power and control" has become the accepted mainstream explanation for the reasons behind acts of violence in interpersonal relationships. However, the violence literature has failed to clearly define power, has failed produce a theory of power as a motive for violence, and has failed to scientifically test this assertion. The main goal of my research has been to address this gap by expanding our current understanding of how an individual's sense of power, or lack thereof, acts as the motive for using control tactics and violence in their relationships. In this presentation, I will discuss the pertinent literature regarding power and violence, introduce a new theoretical construct I developed called Internal Power®, and present findings from a scientific study that evaluated internal power's relationship to an individual's use of violence.

The Center for Gender Studies is pleased to announce that Dr. Apryl Alexander will be giving a talk "Juvenile Injustice: How Psychology Can Inform Public Policy and the Law" on Friday, April 22nd at 1:00 in Hurlburt 249/250. All are welcome.

Center for Gender Studies Oral Presentations

Childhood Victimization, Poly-Victimization and Perceived Family Environment in Jail-Incarcerated Women

Alyson Faires **Stephanie Gusler** **Lora Wagner**

Faculty Mentor(s): Ann Elliott Psychology
Jeffery Aspelmeier Psychology
Thomas Pierce Psychology

Tuesday, April 19th Heth 022 4:30 pm-4:45 pm

Previous research has indicated that childhood victimization is associated with psychological distress and dysfunctional family systems. Evidence also suggests that family environment plays a role in psychological functioning and how victims of abuse cope with their distress (Briere & Elliott, 1994). Further, those who report low levels of cohesion and high levels of conflict, as measured by the Family Environment Scale (Gold, Hyman, & Andres-Hyman, 2004; Messman-Moore & Brown, 2004), often report dysfunctional family environments. Family environment may also be predictive of an increased risk for polyvictimization (i.e., exposure to high levels of multiple types of victimization) which, in turn, is predictive of increased trauma symptoms (Finkelhor, Ormrod, & Turner, 2007a). This study investigated the relative contribution of six types of childhood victimization and poly-victimization in predicting two subscales of the Family Environment Scale (Cohesion and Conflict). Hierarchical regression analyses using survey data from 126 jail-incarcerated women showed that poly-victimization added relatively large and statistically significant percentages of variability accounted-for to multiple regression equations predicting FES scores after the six categories of victimization had already been entered as a first block of predictors.

Center for Gender Studies Oral Presentations

The Relation Between Workplace Deviance and Justifications

Priya Lall

Faculty Mentor(s):	Jay Caughron	Psychology
Tuesday, April 19th	Heth 022	4:45 pm-5:00 pm

The study investigates the relation between workplace deviance and justifications. For example, if an employee is questioned by their supervisor about them leaving early from work every day what is the reasoning that the employee provides; is it because everyone does it or another justification. A justification taxonomy has been developed consisting of five categories that are most likely used when questioned about their behavior: blame victim, blame other, blame situation, challenge authority, and fairness. Workplace deviance is categorized into two different types which are organizational deviance and interpersonal deviance. Gender will also be a variable examined in order to better understand if gender has any effects on the types of justifications used when questioned about their workplace deviance by their supervisor. It is hypothesized that the justifications utilized will be dependent on the type of workplace deviance. It is also hypothesized that the type of justification utilized will differ based on gender. It is expected that organizational deviance will result in justifications such as blame situation, challenge authority, and fairness; interpersonal deviance will result in justifications such as blame victim and blame others. In addition, women are expected to use justifications such as blame victim and blame other whereas men will utilize justifications such as blame situation, challenge authority, and fairness. This study will assist in being better able to respond to others in order to prevent workplace deviance and to better understand ourselves.

Center for Gender Studies Poster Session

Good, Bad, and the Indifferent: Do Habits Have Trait-Like Qualities?

Kathryn Rehberg

Faculty Mentor(s):	Niels Christensen	Psychology
Tuesday, April 19th	Heth 022	5:15 pm-6:15 pm

The automatic nature of habits means that these behaviors have a surprising – and often hidden - influence over a wide range of daily actions when compared to the influence of conscious goals (Bargh, 1994, 1996). Although goals influence behaviors when habits are weak, goals become less influential as the strength of the habit increases (Neal et al., 2011; Neal et al., 2013). Despite habits' importance, basic questions about the construct remain. Previous research on habits has predominately examined how to break bad habits, or promote positive habits; however, research has yet to assess the extent to which habits have trait-like qualities (Neal et al., 2013). The primary goal of the current research is more fundamental: To what degree do individuals vary in their strength of habits across positive and negative habits? That is, do habits have trait-like qualities? If so, are men and women equally likely to express habits in a trait-like fashion. To answer these questions, 350 Radford University undergraduates will report habit strength on ten different positive and negative habits. If participants' habit strength load on a single factor, it will suggest that some people are more prone to habitual behavior than others. Alternatively, it could be that habit strength loads on two or more factors. That result would suggest that people are prone to particular types of habits or that specific habits are idiosyncratic to each person.

Center for Gender Studies Poster Session

Analysis of Gender and Strain Differences in Hippocampal Neurogenesis in Adult Rats

Anastasia Formica
Frank Griffey
Amanda Dixon

Faculty Mentor(s):	Dayna Hayes	Psychology
Tuesday, April 19th	Heth 022	5:15 pm-6:15 pm

There is a comprehensive body of research indicating that neurogenesis continues throughout adulthood. This process by which new neurons are born and integrated into existing brain circuitry takes place in four stages: cell proliferation, differentiation, maturation, and survival. One of the primary regions where neurogenesis occurs is the hippocampus, which plays an extensive role in learning and memory. Though investigators have analyzed how various experimental interventions might affect neurogenesis, the research has almost exclusively been conducted in male Sprague-Dawley rats. However, various gender and strain differences are known to exist. For instance, females are more likely to consume addictive substances that inhibit neurogenesis while androgens in males have been shown to enhance cell proliferation. Additionally, Long-Evans rats have generally outperformed Sprague-Dawley rats in several hippocampal-dependent learning tasks. To date there has not been a comprehensive study to examine whether significant baseline gender and/or strain differences in hippocampal neurogenesis exist. To that end, adult (~6.5 months old) male and female Sprague-Dawley and Long-Evans rats were perfused without exposure to experimental manipulations. Brains were collected, sliced, and stained for Ki67 immunoreactivity, a common indicator of cell proliferation. Cells expressing Ki67 are being counted and compared. It is predicted that Long-Evans rats and male rats will show significantly higher levels of neurogenesis than their respective counterparts. These results may indicate a need for researchers to include various strains and both genders in future studies in order to increase the generalizability of research intended to model human behavior.

Predicting Workplace Incivility: The Role of Stereotyped Beliefs and Personal Characteristics

Sarah Abercrombie

Faculty Mentor(s):	Sarah Hastings	Psychology
	Tracy Cohn	Psychology
	Thomas Pierce	Psychology
Tuesday, April 19th	Heth 022	5:15 pm-6:15 pm

Research indicates that women are more likely than men to be the targets of repeated uncivil behaviors in the workplace. Members of ethnic and racial minorities are also at increased risk of experiencing incivility. Repeated experiences of this low-grade aversive treatment can lead to negative physical and psychological outcomes affecting both the personal and professional lives of the target as well as bystanders. Incivility has also been empirically linked with decreased efficiency of organizations as a whole. Notably, these outcomes have been linked to job withdrawal, leading researchers to investigate selective incivility as a potential contributing effect of the glass ceiling for women and minorities in the United States. While much research has focused on the perspective and outcomes of the targets of incivility, few investigations have focused on the perspective and characteristics of the perpetrators of these uncivil behaviors. The current research seeks to investigate a relationship between specific personality characteristics and perpetration of incivility against women and minorities. In order to provide a holistic view of the social landscape of incivility in the workplace and to account for the global nature of its harmful effects, information about perpetration and the experience of incivility will be recorded from both male and female participants. Personality characteristics including narcissism, aggression, and sexism will be recorded for both males and females. Implications and suggestions for future research will be discussed.

Center for Gender Studies Poster Session

Post-traumatic Growth in Breast Cancer Survivors: Does Type of Support Matter?

Savannah LeBarre

Faculty Mentor(s):	Ruth Riding-Malon	Psychology
	Thomas Pierce	Psychology
	Sarah Hastings	Psychology
Tuesday, April 19th	Heth 022	5:15 pm-6:15 pm

Breast cancer, although considered a traumatic experience, can lead to posttraumatic growth. Research has found that more survivors experience growth than posttraumatic stress disorder. While there are factors suggested to contribute to growth, there are inconsistencies found within the literature. One such factor, social support, is a malleable factor that could be beneficial for interventions to foster growth. Currently, there is no research on posttraumatic growth in rural areas. Due to fewer resources and a lesser likelihood of having peer support groups, along with an increased likelihood of religious supports, it is plausible that rural breast cancer survivors differ from non-rural areas on levels of posttraumatic growth. These relationships will be explored to ascertain whether geographical location and type of support matters within a breast cancer survivor population. Implications, limitations, and considerations for future research will be explored.

Graduate Studies Oral Presentations

Collaborative Learning in the 21st Century Classroom

Rodney Ray

Faculty Mentor(s):	Daniel Woods	English
Tuesday, April 19th	Heth 014	3:00 pm-3:20 pm

In an effort to determine the effectiveness of the collaborative teaching method known as “Jigsaw Teaching” in the early college classroom, three CORE instructors were shown how to implement the method into a single lesson. The three instructors then taught their “Jigsaw” lessons to first and second semester freshman in five CORE 101 and 102 classes while being observed. After the lesson, student and instructor participants filled out a questionnaire that consisted of questions such as: “Did you find this to be an effective method of teaching?” and “Do you think you learned everything your instructor wanted you to learn?” The data was then collected and quantified. The number of positive answers were compared to the number of negative answers. The responses were overwhelmingly positive. The data shows that nearly all students enjoyed the “Jigsaw Method” and found it to be a valuable use of class time. These findings could be evidence of the validity of some collaborative teaching methods, including “Jigsaw Teaching,” though further research is still required to say definitively.

Graduate Studies Oral Presentations

Impact of Obesity on Cardiac Function in Healthy Children

Jessica Ostrower

Faculty Mentor(s):	Adrian Aron	Physical Therapy
Tuesday, April 19th	Heth 014	3:20 pm-3:40 pm

In 2014, the World Health Organization reported that 39% of the worldwide adult population over the age of 18 was overweight and 13% was obese. The rates for children are also high, with over 42 million overweight children globally. Furthermore, the biggest concern is that these children will likely remain obese or overweight into adulthood. Two of the major consequences of adult obesity are changes in cardiac function and structure. A direct link has been demonstrated between the extra weight and increased blood pressure, abnormal endothelial function, arterial stiffness and left ventricular remodeling. These maladaptive changes are believed to begin early in the lives of obese and overweight children. To test this assertion, we are reporting on a study conducted to measure the cardiac function and fat percentage of children between 11 and 12 years of age. This protocol utilized non-invasive bioimpedance technology to collect hemodynamic variables in 109 children from Romania. Central hemodynamic variables were monitored at rest, in a supine position after refraining from physical activity for at least 8 hours prior testing. The variables collected include systolic blood pressure (SBP), heart rate, ejection fraction, end diastolic volume, myocardial contractility (CTI), systemic vascular resistance (SVR) and stroke volume. Skinfold measurements were recorded in order to determine body fat percentages. Preliminary results showed that higher fat percentage may predispose children to an increased SBP and SVR, and a lower CTI. Weight control interventions early in the lives of obese and overweight children should be implemented in order to improve cardiovascular function and potentially stave off serious illness and disease in adulthood.

Primary Grade Students' Mathematics Learning: Money Talks? Money Teaches!

Jenna Weinberg
Rachel Klein

Faculty Mentor(s):	Rayya Younes	School of Teacher Education and Leadership
	Deborah Bays Wilbon	School of Teacher Education and Leadership
	Boyoung Park	School of Teacher Education and Leadership
Tuesday, April 19th	Heth 014	3:40 pm-4:00 pm

Primary grade students learn money units, grouping and determining the value of coins and bills. These concepts are not easily understood and applied by students. During the summer break, parents could help students' understanding and application of the mathematics concepts with daily activities. The research to be presented examined the effects of daily mathematics activities on primary grade students' mathematical learning. The research participants utilized real money in their daily lives for ten weeks. Throughout the daily money related activities, the students had opportunities to group and determine the value of coins and to make change to get the correct amount. Pre- and post-assessments were administered, video recorded, and analyzed. Overall, the efficiency in counting the money improved in all three students. This improvement in efficiency also led to an increase in the speed with which the students counted money.

Graduate Studies Oral Presentations

Floyd County Place-Based Education Oral History Project, "Roots With Wings".

Olivia Thompson **Bianca Dickerson**
Kelsey Boyd **Mary Ellis**
Derik Galvez **Fiona Mahar Milani**
Rolphine Vales

Faculty Mentor(s):	Melinda Wagner	Sociology
Tuesday, April 19th	Heth 014	4:00 pm-4:20 pm

For over ten years, the oral histories of Floyd County residents have been captured and preserved at the Old Church Gallery in Floyd County. The Old Church Gallery, Ltd., Radford University's Center for Social and Cultural Research, Honors Program, Scholar-Citizen Initiative, Appalachian Regional and Rural Studies Center, and Floyd County High School have collaborated through the Floyd County Place-Based Education Oral History Project, "Roots With Wings". Place-based education incorporates the immersion of students in local culture and history, to create a foundation for applying their education. The project is a multi-stage approach that teaches FCHS students invaluable skills, where RU students gain experience as mentors and researchers, with the goal of preserving Floyd County stories and creating important research of oral history. This year's project centers around the theme of community and neighborhoods. What is the importance of community in Appalachia? How has the structure of neighborhoods and communities evolved through generations? In Spring 2016, seven RU student mentors, RU faculty, high school staff, and community volunteers met weekly to teach FCHS students interview skills, transcription skills, and audio and video recording skills. These skills prepared students to conduct formal interviews which were utilized in the production of a final documentary that captures the histories of four Floyd County Residents. Our research presents key themes through methodological interviews and qualitative analysis. Our results indicate an evolution of community and neighborhoods, as well as the integral roles of church, family, and land in creation of community and neighborhoods.

Lessons Learned from a Flipped Chemistry 101 and the Implications for High School Implementation

Matti Hamed

Faculty Mentor(s):	Joseph Wirgau	Chemistry
Tuesday, April 19th	Heth 014	4:20 pm-4:40 pm

I am examining the academic and ethical implications of using a flipped classroom in a high school setting. In May of 2015 I attended the Flipped Learning Institute which provided training in best practices for creating a flipped classroom. During the fall of 2015 I observed a flipped introductory chemistry class at Radford University and analyzed data on student learning through content tests and attitude surveys. A flipped classroom is a teaching method that is designed to be more student centered by delivering curriculum content at home, usually by video, and using class time to approach homework problems in a collaborative setting. Flipping a class increases teacher to student interactions, as well as peer to peer interactions, which results in students developing skills such as collaboration and communication. Students also develop better time management skills because they are more responsible for acquiring the curriculum content. In certain circumstances flipped learning demonstrates positive gains for students academically. Results from the fall chemistry class will be examined in relation to how flipped learning can be implemented in a high school biology course.

Graduate Studies Poster Session

Integrating Real-Time Musculoskeletal Ultrasound Education into a Doctor of Physical Therapy Curriculum

Cody Bailey

Faculty Mentor(s):	Kristen Jagger	Physical Therapy
	Brent Harper	Physical Therapy
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

Physical therapists are leading experts in the diagnosis and treatment of movement impairments. Knowledge of normal neuromusculoskeletal structure and function is of paramount importance, and objectifying the diagnosis and treatment of connective tissue dysfunction is critical. Utilizing technology to gain a greater understanding of connective tissue's behavior during evaluation/treatment will play a key role in legitimizing future clinical interventions. Real-time ultrasound (RTUS) imaging units allow the experienced user to quantify tissue thickness, density, and certain types of pathology. The purpose of this study was to integrate basic RTUS education into one course within the RU DPT program and assess the perceived benefit. Twenty-six DPT students participated in a single education experience regarding RTUS. Students were given a brief lecture, shown important scanning techniques, and were provided a demonstration. A pre-test was administered one day prior to the teaching session, again immediately after the teaching session, and finally one week following the session. Responses revealed an increase in knowledge of grayscale tissue characterization and an increase in correct identification of specific tissue structures. The sole exception was a decrease in correct identification of a bursa. Post-test scores were higher than pre-test scores, with immediate scores exceeding one-week post-test scores. A single educational session successfully increased the knowledge base related to musculoskeletal RTUS in a group of 26 DPT students. Students performed best on questions related to content emphasized throughout the session. Based upon these outcomes, it is reasonable to believe that integrating educational sessions throughout the curriculum will yield a more well-equipped entry-level physical therapist.

Recovery Following Total Knee Arthroplasty: A Case Series

Nathan Willaford

Faculty Mentor(s):	William Kolb	Physical Therapy
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

Purpose: This project is designed to categorize comorbidities, clinical metrics, surgical methods and variations in rehabilitation procedures in order to design a prognostic model of factors that influence recovery following total knee arthroplasty (TKA). These prognostic factors may predict the extent of what a full recovery will be on an individual basis as well as how they follow the recovery curve noted by Kennedy et. al. The goal of analyzing these variables is to make improvements in the efficiency of the post-operative interventions of a physical therapy program that promote optimal outcomes. / Methods: As part of a larger quality improvement (QI) project, retrospective Electronic Medical Record (EMR) audits will be performed to analyze key data points to determine which factors of a patient's health, hospital care and physical therapy treatments most influence the recovery post-TKA. The population for this review is all TKA patients at a local hospital who have completed pre-operative education and training as screened and identified by the director of rehabilitation and her designee based on clinical schedule information. Emphasis will be placed on factors such as psychosocial, comorbid, surgical and physical therapy treatment variations for how they affect TKA outcomes. / Results: Identification of multiple sources of variation in postoperative rehabilitation is believed to prolong the patient's recovery curve. The goal of analyzing these variables is to make improvements in the efficiency of the post-operative interventions of a physical therapy program to promote optimal outcomes.

Graduate Studies Poster Session

First In, Last Out: Efficiency, Sustainability, and Effectiveness of a Volunteer Fire Service in the City of Galax

connor fetridge

Faculty Mentor(s):	Tay Keong Tan	Political Science
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

The project was to help The Galax Volunteer Fire and Rescue, a non-profit organization, develop a strategic action plan to ensure the stability and effectiveness for the future. By studying the logistics of running a department and doing cross benefit analysis of career and combination departments against all volunteer. On March 14th I will be presenting this project to the City Council of Galax in hopes of getting more funding.

Superwomen: Is it Cold In That Refrigerator? The Evolution of the Depiction of Female Characters within Superhero Narratives

Shannon Knuston **Adrianne Reeder** **Anna Nicholas**
Heidi Warner **Hope Crawford** **Kaitlyn Fisher**

Faculty Mentor(s):	Scott McDarmont	CORE
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

Women make up a growing demographic among consumers of superhero comics and their related media with some estimating that women make up nearly half the readership of all comics. With research indicating that such media can have a profound affect how young women perceive both themselves and the role of women in general, it is all the more important that they are exposed to positive representations of femininity. Unfortunately, the comic book industry doesn't have the best history when it comes to progressive representations of its female characters; they are alternately over-sexualized and victimized (as highlighted in the ongoing 'Women in Refrigerators' project). This project seeks to trace the history of these depictions as well as look to more positive developments in recent years and how these latter developments should serve as a guideline for the future of how these 'Superwomen' are depicted in comics and their related media.

Mission & Philanthropy of Faith-Based Apparel Companies

Megan Wolf

Faculty Mentor(s):	Tammy Robinson	Design
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

A faith-based company is one that is founded on religious principles or currently operates under a faith-oriented business model (Preyss, 2013). In this paper, different aspects and characteristics that make up a faith-based company will be discussed. These qualities could range from whether or not the owner is religious, if the company is for profit or nonprofit, if the mission statement is faith-based, if it believes in fair trade and is sweatshop free, etc. These companies specialize in a different variety of products including clothing, accessories, jewelry, shoes, home décor items, coffee, and food. The mission statements of companies that are faith-based and companies that do not associate themselves with a specific religion will be compared. The marketing strategies will also be examined to see how they are similar and how they differ from each other. This will include analyzing the different techniques and tactics used on social media and the effectiveness of these methods. A classification chart was developed for data collection and content analysis will be used for data analysis.

Graduate Studies Poster Session

Exploring the Unique Needs of Vietnam-Era Veterans at End-of-Life Through Theory, Policy, Practice, and Research

Heather Bowden

Faculty Mentor(s):	Diane Hodge	Social Work
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

Vietnam-era Veterans enter the end-of-life (EOL) stage with a complicated and unique history related to their pre-service, service, and post-service life. For social workers who work with the terminally ill, an awareness of the unique needs of Vietnam Veterans is integral to help diminish suffering and promote comfort and peace. A systematic literature review was conducted to examine the available empirical literature related to end-of-life issues and needs of Vietnam Veterans, Veterans as a whole, and non-veterans. Open and axial coding methods of grounded theory were utilized to identify themes and subthemes from the twenty-three articles that derived from the search. Under the theme control emerged the subthemes, control of their care, letting go of control, loss of control/functionality, family control, and dying with dignity. The theme preparation and planning includes the subthemes, aggressiveness of care, burden on the family, communication with the family, communication with health care providers, and preparedness for death. The final major theme, biopsychosocial-spiritual needs, incorporates the subthemes, unique history, identification of needs, caregiving, symptoms of distress, physical needs, spiritual needs, and support. The results of the systematic literature review suggest that while there are empirical studies regarding Veterans at end-of-life, there is a large gap in research specifically focused on Vietnam-era Veterans in the death and dying process. In addition to the call for greater research related to this relevant and unique population, implications for practice and policy advocacy are discussed.

Suicide in the United States: A Literature Review of Differences between Veteran and Civilian Adult Populations

Haley Whitcraft

Faculty Mentor(s):	Diane Hodge	Social Work
	Rana Duncan-Daston	Social Work
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

Veteran suicide is a formidable problem in the United States and the best way to prevent suicide is development of proper assessment tools that take into account accurate risk factors. This systematic literature review represents an attempt to disentangle the difference in risk factors in veteran and civilian suicides by analyzing past research published about suicide. Thirty studies were compiled for analysis. The results of this study found there are some overlaps in these populations, but that some differences existed in demographic risk factors and mental health risk factors that could help providers better predict suicide risk. For example, diagnosis of post traumatic stress disorder as well as depression were prevalent in suicide risk for both populations, but not surprisingly, the veteran population had higher rates of these mental health diagnoses occurring comorbidly. This study is guided by Joiner's Interpersonal Psychological Theory of Suicide, which is the leading theory of suicide today. Joiner's theory predicts suicide happens at the intersection of lack of belongingness, perceived burdensomeness, and ability to enact lethal self-harm (Joiner, 2005). This study found the first two factors to be common to both populations, but the third factor was exceedingly prevalent in veteran populations. This study will discuss differences uncovered between these populations, and these differences will be applied to policy implications at a federal level and social work practice in terms of assessment tools and treatment. Joiner, T. (2005). Why People Die By Suicide. Cambridge, Massachusetts, and London, England: Harvard University Press.

Graduate Studies Poster Session

A Boot Camp Style Simulation as a Teaching Modality for the Promotion of Interprofessional Collaboration

Eirika Abbey

Faculty Mentor(s):	Shala Cunningham	Physical Therapy
	Millie Sowder	Nursing
	Lisa Foote	Nursing
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

This multidisciplinary simulation experience was developed through the collaboration of faculty from the nursing and physical therapy departments at Radford University. The purpose of this study is to describe an interprofessional acute care simulation experience between nursing and physical therapy students, examining experiential effects on their: (1) understanding of the scope of practice of other healthcare professionals, (2) ability to recognize common and complimentary skills, and (3) confidence with interprofessional communication. To explore the influence of the simulation experience, a mixed methods research design was utilized. Participating students from both professional programs performed the Readiness for Interprofessional Learning Scale (RIPLS) prior to and immediately following the simulation experience. In addition, students were invited to participate in a group interview to discuss the effectiveness of the simulation experience in promoting: (1) the ability to recognize common and complimentary skills (2) the understanding the scope of practice of other healthcare professionals; and (3) confidence with interprofessional communication. Quantitative data from the RIPLS is being analyzed for the mode on each of the 19 questions pre and post simulation with four subscales of the survey being explored. Qualitative data from the focus group interviews is currently in the process of initial and process coding. By providing an experience in which students jointly participated in a simulation experience, interprofessional collaboration with a focus on patient-centered care was fostered.

Randomized Clinical Trial of Dry Cupping Combined with Exercise in Patients with Low Back Pain: A Pilot Study

Steven Boswell

Faculty Mentor(s):	Alex Siyufy	Physical Therapy
	Brent Harper	Physical Therapy
Tuesday, April 19th	Heth 014	5:00 pm-6:00 pm

Abstract Body: Phenomenon: Dry Cupping (DC) is a non-invasive intervention technique that is growing in popularity among many healthcare professionals due to its ability to decrease musculoskeletal pain. DC's use of suction to decompress superficial tissues improves local circulation that facilitates the removal metabolic byproducts that are often responsible for musculoskeletal pain. Subsequently, the decrease in pain is often responsible for increases in the ability of contractile tissues to relax thus leading to an improved joint range of motion (ROM) and improved function. Purpose: The purpose of this prospective pilot study is to explore the potential benefits and indications of using DC combined with therapeutic exercise in individuals with low back pain (LBP) and decreased ROM. Evidence: Research on DC have purported that it is a useful modality for decreasing pain. Several studies have examined its benefits for pain while less have examined its use for improving ROM. However, there is limited research examining DC plus exercise's effect on improving pain and ROM. Testable hypothesis: In patients with LBP, DC applied to both the low back and lower extremities in addition to exercise will produce more favorable outcomes than DC to the low back alone. Importance: If DC and exercise show the ability to improve pain, ROM, and function there maybe a decreased likelihood of invasive surgery, long-term disability, and pharmacological intervention in the management of LBP. Therefore, the combined interventions would provide a non-invasive and cost-friendly treatment option for individuals with LBP, decreased ROM, and decreased function. Keywords: Dry cupping, low back pain, myofascial decompression.

Biology Oral Presentations

Examining the Effects of Bacteriocins on Bacterial Metabolism of Arsenic in the Environment

Nayt Pirino **Holly Rindorf**
Zeb Pike **Sarah Wilber**
Diamond Cooper **Matt Crider**

Faculty Mentor(s):	Georgia Hammond	Biology
Tuesday, April 19th	Center for the Sciences M073	4:00 pm-4:15 pm

The Brinton Arsenic Mine in Floyd County, VA provides a unique opportunity to study environmental bacteria and their mobilization of arsenic compounds in the environment. These microbial processes involve conversion between different forms of arsenic, the two most prevalent being arsenate (AsV) and arsenite (AsIII). Both types of compounds interfere with protein structure and metabolic processes in humans and bacteria alike. Our work is aimed at isolating and identifying bacteria that have important impacts on concentrations of environmental arsenic, and determining their arsenic-resistance gene repertoires. Furthermore, we are designing a laboratory model system in which we use bacteriocins to reduce bacterial production of these toxic forms of arsenic. Bacteriocins are proteins secreted by bacteria to inhibit the growth of competitive species. The use of bacteriocins to control the growth of bacteria that contribute to the mobilization of arsenic in the environment may provide a significant method for reducing the amount of arsenic that reaches surface and ground water systems.

Nectar Robbing as a Means of Invasive Plant Population Control by Ants in a Subtropical Dry Forest

Annie Rudasill
Sam Evans

Faculty Mentor(s):	Jeremy Wojdak	Biology
	Christine Small	Biology
	Arietta Fleming-Davies	Biology
Tuesday, April 19th	Center for the Sciences M073	4:15 pm-4:30 pm

Efforts to maintain biodiversity in island communities can be severely compromised by the introduction of invasive species. On St. John, the prevalence of the invasive flowering plant colloquially called mother of millions (Kalanchoe pinnata) may cause drastic changes in understory plant community structure. However, mother of millions is subject to pollen cheating, indicated by a hole in the base of the flower, and subsequent nectar robbing by ants, which could inhibit individual plant growth and abundance in the understory. We collected abundance and visitation rates of ants on flowering stalks, and compared the amount of available nectar in flowers that had holes to those that did not. We analyzed the rate of nectar robbing by ants and quantified the effectiveness of ants in limiting the success of mother of millions on St. John, and identify nectar robbing by ants as a potentially important species interaction that could limit the spread of an invasive species.

Biology Oral Presentations

Intraspecific Competition Among and Resource Exploitation by Anolis cristatellus in the Virgin Islands National Park St. John, US Virgin Islands

Keifer Titus
Shane Brandes

Faculty Mentor(s):	Jeremy Wojdak	Biology
	Christine Small	Biology
	Arietta Fleming-Davies	Biology
Tuesday, April 19th	Center for the Sciences M073	4:30 pm-4:45 pm

Anolis cristatellus is the most common species of anole present on St John, USVI and is a predator of arboreal termites (Nasutitermes acajutlae). Many studies have been conducted on abundance and distribution of Anolids, however in the U.S. Virgin Islands little is known about the behavior of crested anoles at abundant food resources. Here we aimed to determine the relative intraspecific competition and foraging behaviors of anoles at exposed arboreal termite trails. We randomly selected 25 active arboreal termite nests in a variety of habitat types and disrupted primary termite trails in order to observe anole behavior at an abundant food resource. We hypothesized that initial arrival of anoles would take longer than the arrival of subsequent anoles and that larger anoles would feed longer and show more dominant behavior in the presence of conspecifics. Following trail disruption, we observed and recorded time to first anole arrival, time to subsequent anole arrivals, number of termites eaten per individual, behavioral interactions of present individuals (e.g. displaying, chasing, foraging), and termite response to trail disturbance. Results will be discussed in light of recent analyses.

Comparison of Habitat, Size, Depth and Residents of Strombus gigas Shells between Little Lameshur, Greater Lameshur and Salt Pond Bay of St. John, US Virgin Islands

Kelly Armentrout
Megan Collier
Leanna Hall

Faculty Mentor(s):	Jeremy Wojdak	Biology
	Christine Small	Biology
	Arietta Fleming-Davies	Biology
Tuesday, April 19th	Center for the Sciences M073	4:45 pm-5:00 pm

Strombus gigas, also referred to as the queen conch, is a large marine gastropod that is commonly found in shallow Neotropical Atlantic waters. Queen conch are harvested as a food source and also for their decorative shells. In the U.S. Virgin Islands, conch harvesting season is from October to June, including in the national park, with a size restriction of >22.8 cm from tip to tip. We examined the size distribution, habitat preference, depth and residents and the variation between the three bays sampled. Because of their diet, we expected conch to be most commonly found in seagrass substrates, and because of the intense but size-restricted harvesting, we expected larger, more abundant conch in less human-visited bays. Our data were collected throughout a consistent four-hour time span for each bay using a catch per unit effort method. In addition, we did a timed swim for each bay to estimate the relative spatial coverage of different bottom substrates. We dove for the shells and estimated the depth at which they were retrieved, noted what was living inside them (e.g. conch, hermit crab, fire worm, etc.) and measured their length in centimeters. Statistical analyses of our data, and that from a similar project two years ago, is ongoing.

Biology Oral Presentations

Assessment of Population Density and Health of Agave Missionum after the Introduction of Scyphophorus acupunctatus, the Agave Snout Weevil, on St. John, U.S. Virgin Islands

Brooke Blevins **Chad Cassar**
Elizabeth Grandy **Ryley Harris**

Faculty Mentor(s):	Jeremy Wojdak	Biology
	Christine Small	Biology
	Arietta Fleming-Davies	Biology
Tuesday, April 19th	Center for the Sciences M073	5:00 pm-5:15 pm

Agave missionum, commonly known as the century plant, is an endemic species to Puerto Rico as well as the U.S. and British Virgin Islands. The agave plant has various practical uses among the locals; it is used as a needle and thread, a source of fiber for rope and other materials, and also as an ornamental. A. missionum nectar serves as an important source of food for local fauna (e.g., bats). In 1997, the agave snout weevil (Scyphophorus acupunctatus) was introduced to the Caribbean, possibly by way of hurricane, and caused a significant increase in mortality among A. missionum plants. Previous research conducted by Radford University students has indicated some recovery in the abundance and health of A. missionum since 2012. Our goal was to determine if these trends have continued despite the initial impact of the agave snout weevil. Similar to previous studies, we surveyed three areas: Yawzi Point, Lower Lameshur Bay trail, and Upper Lameshur Bay trail, representing the three major habitats commonly found on the island of Saint John (arid scrublands, disturbed dry forests, and intact dry forests, respectively). We measured the density, width (m) and height (m), and geospatial location of living agave plants. A health rating was also given to each plant based on its condition. For dead plants, the diameter (m) of the remaining stalk base was measured. Dying plant matter was also examined for presence of the agave snout weevil. Statistical analyses of the collected data are in progress, but recovery looks promising.

A Comparison of Fish Species Richness and Composition Among Different Marine Substrates Along the Coast of St. John, U.S. Virgin Islands

Cari McGregor **Kayla McNeilly**
Taylor Layton **Monika Mattson**
Sarah Parnell

Faculty Mentor(s):	Jeremy Wojdak	Biology
	Christine Small	Biology
	Arietta Fleming-Davies	Biology
Tuesday, April 19th	Center for the Sciences M073	5:15 pm-5:30 pm

Species diversity is known to be generally higher in tropical climates than in temperate ones, and the marine life of the Caribbean is no exception. However, marine environments are themselves diverse in terms of bottom substrates and micro-environmental conditions. The goals of the study were to describe patterns of fish species diversity and abundance across habitat types, and to determine the strength of preference among fish species for specific bottom substrates and location in the water column. We surveyed four different marine substrates (e.g., sand, seagrass, small rocks, and large rocks) in Little Lameshur Bay, Greater Lameshur Bay, and Salt Pond Bay on St. John, U.S. Virgin Islands. Data were collected by snorkeling the east and west sides of each bay, once per side in the morning and again in the afternoon for 10 minutes per substrate. Fish species identity, abundance, and depth were recorded for each of the different substrates. Abundance was categorized using four classifications commonly used by citizen science fish survey programs: single, few, many, and abundant. Depth was also categorized by stating whether the species was found at the bottom, in the water column, or at the surface of the water. There is often a positive correlation between habitat diversity and species richness, meaning the greater the diversity of niches available in a habitat, the greater the species diversity. We expected to see higher fish diversity and abundance in rocky substrates because it allows for more niches to be exploited by different species. Analyzes of the data collected are ongoing.

Biology Oral Presentations

The Involvement of Bacterial Arsenic Resistance Genes in the Concentration of Toxic Arsenic at the Brinton Mine

Javier Waase **Michael Angelopulos**
Heather Pauley **Danielle Lattanze**
Erick Biggs

Faculty Mentor(s):	Georgia Hammond	Biology
Tuesday, April 19th	Center for the Sciences M073	5:30 pm-5:45 pm

Arsenic is a toxic heavy metal that can contaminate groundwater to cause major environmental problems, not only to plants and animals, but humans as well. The Brinton Arsenic Mine in Floyd County, VA is our study site. We collected sediment samples there for isolation of bacterial cultures that we then used to test for the presence of arsenic resistance genes. Our lab has previously characterized a number of bacteria from the arsenic mine as to the presence of the arsenic resistance gene, arsC. The arsC gene takes arsenate that comes in from the environment, reduces it to arsenite, and transports it out of the cell. Arsenite is the most toxic form of arsenic, disrupt protein folding. The transport protein, arsB, that pumps arsenite into the environment can be more efficient by an additional gene, arsA. The gene arsA is an ATPase that enhances the efficiency of the active transport by this protein. Bacterial cultures were grown in arsenate; cells were pelleted, and the supernatant was analyzed for the amounts of both arsenate and arsenite present. We examined our results by making ratios of arsenite to arsenate. This allowed us to determine the amount of arsenite pumped out by the efflux pump for each individual bacterial culture. Both high and low arsenite to arsenate ratios were observed and our goal is to determine if the presence or absence of the arsA gene is responsible for this result.

Investigation of Movement Modalities in Armadillidium vulgare

Kelly Armentrout
Evan Cowling

Faculty Mentor(s):	Judy Guinan	Biology
Tuesday, April 19th	Center for the Sciences M073	5:45 pm -6:00 pm

Pill bugs (Armadillidium vulgare) are terrestrial isopods; much of their behavior revolves around a constant need to prevent desiccation. One method of desiccation prevention is to maximize physical contact with conspecifics. To accomplish this, an aggregation pheromone is excreted through fecal matter. Even in nearly optimal conditions, the ongoing need for moisture drives exploratory behavior. During exploration, pill bugs will travel along a straight line until an obstacle is reached. A turn choice is made. Upon reaching a second obstacle, pill bugs turn the opposite direction; utilizing this modal action pattern of sequential turn alternation yields a net straight line away from the origin of movement. We investigated the relative importance of pheromonal aggregation versus turn alternation in a laboratory setting. We extracted aggregation pheromone and laid trails to provide an impetus for movement. We observed aggregation, but the pheromone had no impact on initial turn decision. This lack of response indicates that aggregation pheromone has no impact on turn alternation. In our presentation, we elucidate potential problems with investigating how aggregation pheromone impacts behavior in a laboratory setting.

Biology Oral Presentations

Sex Based Differences in Parental Care in Response to Predation Risk in Eastern Bluebirds (Sialia sialis).

Shane Brandes

Faculty Mentor(s):	Judy Guinan	Biology
	Jason Davis	Biology
Tuesday, April 19th	Center for the Sciences M073	6:00 pm -6:15 pm

To successfully raise offspring, eastern bluebirds (Sialia sialis) must balance the stressors associated with parental care duties with the risk of their own mortality by predation. When predators are in the vicinity, nesting birds are expected to show anti-predator responses. This study addressed the question of whether male and female eastern bluebird parents invested differently in parental care in response to predation risk, by using a bird of prey tethered near nesting boxes to measure parental responses. We hypothesized female parents would take greater risks than males while brooding and feeding nestlings since they have invested a greater amount of time and energy producing, laying, and incubating eggs. We tested male and female risk-taking response after exposure to a predator by measuring distances parents maintained from the nest box, which parent returned first, and total number of feeding trips made by each sex during the observation period. If parental risk avoidance varied in relation to investment, then we expected females to return to the nest earlier and stay closer to the nest than males, after exposure to a predator. Our results showed that although males appeared to alter their behavior after exposure to the predator, females did not appear to take more risks than males.

Biology Poster and eportfolio Session I

Who's More Stressed? A Comparison of Stress Levels Between Majors and Class Levels

Brittany Justice **Katharyn Self**
Darius Brown **Sarah Rainey**

Faculty Mentor(s):	Sarah Redmond	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm- 7:15 pm

Secretory immunoglobulin A (IgA) is an antibody found in saliva that is a useful indicator for evaluating stress levels. Low levels of IgA are associated with high stress levels. During periods of high stress, immune responses against pathogens are negatively impacted by decreased levels of IgA. Due to the effects of high stress on learning, memory, and overall health, it is useful to learn what factors have significant impacts on stress levels. In this study, stress level differences between freshmen and senior biology and parks, recreation, and tourism majors will be measured. IgA level differences between these four specific academic groups will allow for evaluation of how transitional and acclimation periods affect stress levels. Freshmen will still be adjusting to collegiate course loads and seniors will be transitioning from undergraduate studies to employment or graduate programs. These specific majors were chosen because their freshman level courses are similar, while their senior level courses focus on far different topics. Stress levels will be measured through the collection of salivary samples from the different test groups. IgA levels in these samples will be measured through the use of an ELISA assay. We expect to learn what stressors, such as major and class level, have the most impact on overall stress levels among college students.

The Effects of All-Night Studying on Salivary Antibody Levels in College Students

Ashley Florey **Ross Tombs**
Ruth Boylan

Faculty Mentor(s):	Sarah Redmond	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm- 7:15 pm

Much research has gone into studying how pulling an all-nighter as a form of studying affects tests scores and overall aptitude. Our study pushes further by questioning how pulling an all-nighter affects levels of stress in the human body and more importantly how stress from the lack of sleep affects the levels of antibody proteins which help humans on a regular basis. We are measuring the amount of IgA antibodies in the saliva of students while pulling an all-nighter and observing variation in the amount of IgA as an indicator of stress.

Do Perceived Stress Levels Correlate with Salivary IgA Levels in College Students?

Bowen Sheng
Jacob Vaught

Faculty Mentor(s):	Sarah Redmond	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

It is a commonly known fact in the scientific immunological community that levels of Immunoglobulin A are inversely correlated to an individual's biological stress response. This is due to an increased secretion of cortisol/corticosteroids during periods of stress, hormones with an immunosuppressive property. Our study aims to find the correlation between how college students perceive their stress levels versus their stress levels as indicated by their Immunoglobulin A levels. While students generally understand the concept of stress, some may overestimate or underestimate their stress levels. In general, however, we speculate that students can quite accurately predict the levels of stress they maintain on a day to day basis. We gather this information by inquiring students as to their perceived levels of stress and then gathering their saliva samples. After performing an Enzyme-Linked Immunosorbent Assay (ELISA), we will be able to accept or reject our null hypothesis that students maintain the ability to perceive their stress levels accurately; accuracy being determined by relative numerical indication between perceived stress ratings and levels of IgA.

Biology Poster and eportfolio Session I

Does Owning a Dog Correlate with Low Immunological Impacts of Stress for College Students?

David Morabito **Olivia Allred**
Conrad Neuf **Katharyn Seay**

Faculty Mentor(s): Sarah Redmond Biology
Tuesday, April 19th Center for the Sciences Mainstreet Lobby 6:15 pm-7:15 pm

Stress can affect the levels of immunoglobulin in humans, and concentrations of immunoglobulin are inversely related to stress. We will be measuring stress levels of college students using immunoglobulin A (IgA), which is an antibody that plays a primary role in immune function of the mucosa. Specifically, IgA is found in saliva, sweat, and other mucous membranes. College is a stressful experience for many individuals, and it is a common belief that dog interaction can reduce stress. We are investigating college students that live with dogs and the effect that dogs have on their stress. The levels of stress will be analyzed by collecting saliva samples, which contain the antibody protein IgA. We will determine IgA levels using Enzyme-linked Immunosorbant assay (ELISA), and expect to see a correlation of high IgA levels in students that live with dogs.

Does More Sleep Lead to Lower Immunological Stress Levels in College Students?

Jennie Rhambrose **Brian Pratt**
Stephanie Rowe **Samantha Stepp**

Faculty Mentor(s): Sarah Redmond Biology
Tuesday, April 19th Center for the Sciences Mainstreet Lobby 6:15 pm-7:15 pm

Previous research has revealed that college students tend to have abnormal sleeping patterns. Such abnormalities, like sleep deprivation or oversleeping, can lead to some negative health and life effects. In our research, the main focus is to study the effects of sleep amount (hours) on stress levels among college students. Stress is a response of the central nervous system to environmental or internal threat. Stress triggers the release of hormones, neurotransmitters and has been linked to the modulation of salivary IgA levels. Secretory IgA in saliva can be used as a useful stress marker. Careful unbiased sampling techniques were used to collect saliva from Radford University students and the corresponding IgA levels were evaluated for correlation with reported variation in hours of sleep each subject had in the previous night.

Effects of Vespa Amino Acid Mixture on Cellular Metabolism

Attia Mohamed
Samuel Stowers

Faculty Mentor(s): Sarah Redmond Biology
Tuesday, April 19th Center for the Sciences Mainstreet Lobby 6:15 pm-7:15 pm

Vespa Amino Acid Mixture (VAAM) is a commercially available pre-workout supplement based on the chemical mixture secreted in saliva of larval Asian giant hornets (Vespa mandarina). VAAM is reported to increase aerobic capacity in a variety of species, however its mechanism of activity is not clear. To test its effects on cellular metabolism we exposed adult honeybees (Apis mellifera) to diets of 5% glucose or 5% glucose and 0.3% VAAM. Bees from each group were exercised to exhaustion by a forced swim test and then indicators of cellular metabolism was measured in the carcasses of exercised and non-exercised bees. Surprisingly, bees treated with VAAM swam for significantly shorter periods of time than control bees (204 seconds vs. 1056 seconds, on average). While remaining ATP in the bee carcasses was not impacted by diet or exercise treatment, bees fed VAAM had higher levels of free glucose than control bees, regardless of whether they had been exercised. Based on these data we believe that VAAM impacts cellular respiration of glucose in a way that inhibits production of ATP.

Biology Poster and eportfolio Session I

Sequencing the Genome of Thermoplasma volcanium

Emma Kange

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

There are many genomes around the world that have not been sequenced, and here we are looking at one of those hidden mysteries. We are looking at the sequence of Thermoplasma volcanium, in order to find its function, by looking at other similar proteins. Here, we are looking at genes 18 through 20 in hopes to find the proteins that the bacteria is made of, the protein location, and the function of the protein by comparing its genome to other known genomes of proteins. The genes in this sequence have been analyzed, and behave as though they are extracellular, which was determined by the behavior of its amino acids.

Analysis of Three Potential Genes in the Bacteria Thermoplasma volvanium

Anne Turner
Makayla Beckner

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Many microorganisms have been sequenced including Thermoplasma volcanium, however it had not been analyzed yet. Thermoplasma volcanium is a bacteria that was recently discovered from an isolated hot spring with limited water, it aids acid in the decomposition of rock and clay. We took a look at 3 different potential protein sequences in Thermoplasma volcanium within the coordinates of 8663-10130. Two out of the three sequences we analyzed had no interaction with the transmembrane. There is potential for interaction but with the data given it cannot be determined. However, the other sequence showed potential for interaction either in the membrane or outside of it.

Examination of Three Potential Genes in Thermoplasma volvanium

Barrett Michael
Jordan Smith

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Three unknown amino acid sequences found in Thermoplasma volcanium were run through the BLAST database to determine similarities with other known AA sequences. The final goal is to determine what the unknown species is, does, and whether it is inside the cell, outside the cell or located on the membrane. There are so many other species of bacteria that this species has not yet been researched. We blasted these sequences through the database to determine the location of the sequences; we found that two of the sequences were located within the cytoplasm and the other located on the edge of the membrane. To determine these sequences locations we ran multiple tests including a T-coffee, TMHMM, a SignalP, a LipoP, PSORT-B, and finally a Phobius Prediction. Looking at this unknown section of the genome, we determined that these three proteins could be seen as an important part of the overall cells function.

Biology Poster and eportfolio Session I

A Bioinformatic Analysis of Three Protein Coding Regions Form the Genome of Thermoplasma

Best Jalynn
Jake Shelburne

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Each gene located inside an organism serves a particular function; by understanding these functions researchers can better understand the impact the organism has on the environment. Our class researched the first 50,000 base pairs of Thermoplasmata's genetic sequence. We were assigned base pairs 22763-25258, which included three genes that coded for hypothetical proteins. The Joint Genome Institute's microbial program sequenced microbes, including Thermoplasmata, that had never been studied before in order to expand the potential for microbial research. The purpose of our research was to determine the functions of our assigned proteins, which will serve as the foundation for further research on the archaea. We were able to find homologous proteins within similar organisms through the use of several online programs. This allowed us to predict the function of the unknown proteins and more accurately describe Thermoplasmata.

Gene Annotation in Thermoplasma volcanium

Colleen Talbot
Krysti Streeter

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Science has truly developed through the centuries and with the Human Genome Project finished in 2003 it opened up many doors to scientists with genetics. We can now see the genome of not only human genes, but bacteria as well. Our genome annotation project specifically focuses on the first 50,000 base pairs of the Archaea, Thermoplasmata. Thermoplasmata, a class of the Euryarchaeota, is considered an extremophile that has been associated with coal mine run-off and possible profitable use in environmental mitigation that help clean up min tailings. With being the first group to work on this project, the goal is to identify conserved regions of the protein and identify the possible cellular localization of the protein. Using collected data on nucleic acid and amino acid sequences while also searching for sequence similarities will help to reach the goal. First we will map open reading frames using the ORF Finder. Geni-Act acts as our notebook containing basic information, sequence-based similarity data, and cellular localization data. We use the Geni-Act notebook to store information on three separate reading frames in order to find their location within the cell, amongst other things. For Unnamed locus 21 we found that it is similar to Bacillus subtilis and is most likely non- cytoplasmic and located outside of the cell membrane. Unnamed locus 22 has the gene product of hypothetical protein and is similar to the organism Thermoplasma volcanium . It is likely located inside the cell and is a cytoplasmic transmembrane. Unnamed locus 23 has the gene product of uncharacterized aminotransferase (meaning that it's unknown what the product is) and is similar to the organism bacillus pseudofirmus. It looks to be located outside of the cell membrane and is non cytoplasmic. By studying these three different reading frames we hope to get a better understanding of how the genes in our organism function.

Biology Poster and eportfolio Session I

Annotation of Three Potential Protein Coding Regions within a 4500 Base Pair Portion of the Thermoplasma volcanium Genome

Dalton Crockett
Cody Prater

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Not many genes have been fully annotated, in this study the first 50,000 base pairs of the archaea, Thermoplasmata were analyzed and annotated. Three unnamed loci of Thermoplasma volcanium were analyzed from base pairs 37,710-42,148. Various websites were used to determine different properties of the amino acid sequences. Of the three amino acids that were analyzed, gene annotation was used in order to determine the gene location in the cell. The impact of this research was finding the certain genes that have the ability to filter air in coal mines.

Unnamed Genes 30, 31 and 32 and Their Possible Functions

D'Avianna Love
Becca Chab

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Analyzing unnamed prokaryotic genes 30, 31, 32 and attempting to find their functions and locus in the cell. Our unnamed genes 30 and 32 are not closely related to any known genes; we used several databases in hopes of identifying these genes by cross-referencing structural similarities. The DNA was found inside a cave in our own backyard, in Blacksburg Virginia. Because unnamed gene 31 was found to be similar to Valyl-tRNA synthase, it will be our primary focus in hopes that the knowledge we obtain from it will help identify the functions and locus's of unnamed genes 30 and 32. Geni-act.com provided us with databases to analyze our genes from all angles; however, we focused on psortb because it gave us the most conclusive evidence of gene 31. The DNA from this organism has never been seen before, this DNA could be a past ancestor, or have new proteins that are capable of things we've never imagined.

Annotation of a 3.2 kb Region of the Thermoplasma volcanium

Emily Newcomb
Nora Puryear

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

There are several bacteria that have been sequenced but have yet to be analyzed. One of the many bacteria includes Thermoplasma volcanium. The archean is highly flagellated and cell-wall deficient. We focused our current study on examining three specific genes of the Thermoplasma volcanium between coordinates 14001 and 17200. The purpose behind this investigation was to determine whether their amino acid sequences of these genes code for a functional protein. It was discovered that two of the genes did not interact with the transmembrane helices. Based on the results of the tools used, we hypothesized that two of the amino acid sequences were found outside of the cell membrane and that the third was found inside of the cell membrane. After thorough investigation and analyzation, we came to the assumption that the amino acid sequences we studied coded for functional proteins.

Biology Poster and eportfolio Session I

Gene Annotation in the Bacteria Thermoplasma volvanium

Haley Smith
Caitlin Jannise

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

During this research, three genes from Thermoplasma volcanium, an organism that has not yet been completely annotated, were analyzed. When annotating the genes, the individual genes were identified by their function and location in the cell, so that this organism can be better understood. Nobody else has sufficiently annotated Thermoplasma Volcanium's genes because is it not a well-known bacteria and very little is understood about it. We used a bioinformatic approach to understand the specific regions of this organisms DNA. We found the nucleotide and amino acid sequences and used multiple programs to examine the three genes in depth. Our research will help to better understand this organism's DNA so that others can research Thermoplasma volcanium more in depth.

Analysis of Protein Coding Regions of the Genome of a Bacterium in the Genus Thermoplasma

Harriet Sanya
Sidney Schweikhard

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

The genome project on bacteria has had an impact on biological research. This analysis focuses on the scientific research on bacteria that may be…. Pros or cons about the bacteria. The project has generated some level of unanticipated and novel information; in the latter category are the description of the unusual distribution of three types of genes.

Gene Annotation of Three Putative Protein Coding Regions From the Thermoplasma volcanium Genome.

Jenny Widner
Angela Sanabria

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

We looked at genes of the bacteria Thermoplasma volcanium, and found the general information about this gene and its proteins. The general information included: the length of the gene, its sequence, and the amino acid sequence. We then used this information to find information about the specific proteins these genes have. The genome for this bacteria was just recently found; we are the first people to study these genes. We first had to map the genes of this bacteria, then we used a number of software to test for uses and locations of the proteins. These protein discoveries could help in further research. These genes get put into the database for future researchers to study.

Biology Poster and eportfolio Session I

Gene Annotation From a Short Region of the Thermoplasma volvanium Genome

Kendalyn Hersh **Rachel Flores**

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

The purpose of this research is to identify the location and the function of genes of the organism Thermoplasma volcanium, specifically DNA coordinates 28,492 through 30,797. The goal is to better understand the organism by analyzing its genes compared to other organisms that possess similar genetic sequence. Due to lack of prior research on this organism, the genome of Thermoplasma volcanium has been sequenced but has yet to be analyzed and therefore draws our interest. This research was completed by compiling the organism's genetic sequences and basic information to determine similar function in other organisms. By using bioinformatics software made available to the public, we accessed a variety of components concerning the organism such as: basic information, sequence-based similarity data, and cellular localization data. The findings of this research may be useful in understanding possible usefulness and function of this unfamiliar bacterium.

Annotation of Three Potential Protein Coding Region of the Thermoplasma volcanium

Kenzie Miller **Natasha Williams**

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

The purpose of this experiment is to take a relatively unstudied sequence of bacteria called Thermoplasmata and perform a gene annotation. We will record its basic information, sequence-based similarity data, cellular localization data, alternative open reading frames, duplications and degradations, and horizontal gene transfer sites. The key question we are trying to answer about this sequence is what it codes for, where it's found in the cell or outside of the cell, and purpose it serves for the bacterium. The reason these questions have not been answered by other researchers is because my partner and I are the first people to handle this data; in other words, no one has ever seen this sequence except for us. This is a fairly new genome that no one has studied. We plan to answer the earlier mentioned questions by running our sequence through a series of programs specifically designed to conclude where, when, and how the sequence runs; then we record our data in Geni-act, an online scientific journal. We then will be able to draw a conclusion from all our results for the proteins in this bacteria. Understanding how these sequences of bacteria can help us find any new genes that may have come about and the functions of these proteins. Scientist could study how it works and if it can possibly be used in the future for multiple purposes.

Annotation of Three Potential Genes From the Identified in the Genome of the Bacterium Thermoplasma

Barron Rachael **Meredith Dowdy**

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Throughout the semester we identified and examined three genes found on specific loci in the Thermoplasma genome using protein sequences. Our purpose for this research is to determine the cellular localization of the proteins from information gathered through computer generated programs. We are the first to analyze the genome of the Thermoplasma since it has been written. Through a series of computer generated programs, we were able to obtain basic information and sequence-based similarity data and identify the cellular localization of the proteins for each of the three unknown genes. The possibility of finding the genes responsible for Mineral biooxidation could potentially lead to improvements in air quality surrounding coal mines.

Biology Poster and eportfolio Session I

Computational Modeling of AS1 and AS2 Proteins

Kyanna Jenkins
Tayler Lewis

Faculty Mentor(s):	Tara Phelps-Durr	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

For the duration of animal and plant development, undifferentiated cells must differentiate into the various types of cells that function in the fully developed organism. During development, animal cells undergo and remain in a differentiated state indicating that the genes required for early development are permanently suppressed later in development. In plants, cells can transfer between the de-differentiated and re-differentiated states indicating that the regulation of early development genes is more flexible. In the mustard plant Arabidopsis, two genes, ASYMMETRIC LEAVES 1 and 2 (AS1 and 2), encode DNA binding proteins, known as transcription factors that control how other genes are expressed during leaf development. When the genes are mutated, the leaves do not properly develop because of undifferentiated cells remain in the leaves meaning that AS1 and AS2 control the expression of genes that promote differentiation. The mechanism for how the AS1 and AS2 regulates gene expression and how the cellular differentiation during leaf development is controlled is unknown, largely because the 3-D structure of AS1 and 2 proteins has not been determined experimentally. The goal of the proposed work is to computationally model the AS1 and AS2 proteins to determine their three-dimensional structures. Computationally modeling AS1 and AS2 and how they physically interact with one another will further increase the understanding of how these proteins work to regulate gene expression during development.

Analysis of 3 Potential Protein Coding Regions for the Thermoplasma volcanium Genome

Marya Hubbard
Evan Grey

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Genomes of many bacteria around the world have been sequenced, but have not been analyzed. Thermoplasma volcanium, is an example of a bacteria that has not been analyzed; this is due to their recent gene sequencing. We were able to analyze three potential loci on the Thermoplasma volcanium archaea between base pairs 37710 and 42148 for a total of 4,438 base pairs. We analyzed these three gene sequences by bioinformatic methods. The different programs allowed us to predict if the gene sequences coded for proteins and if they were located in the transmembrane or not. From this gathered information, we are now able to surmise that the gene sequences do code for proteins. Furthermore, we can understand the function of the proteins and their location, within the cell. Overall, there is a better understanding of Thermoplasma volcanium.

Analysis of 3 Protein Coding Regions of the Thermoplasma volcanium Genome

Sydney Jenkins
Lindsay Graham

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	6:15 pm-7:15 pm

Thermoplasma volcanium is a relatively unknown newly sequenced genome from a poorly understood group of bacteria, called Archaea. This gene has been computer annotated, but not extensively annotated. In order to better understand it we examined 5,952 base pairs and analyzed them. In particular, three loci were reviewed and multiple tests were conducted. For each locus the DNA and amino acid sequences were found and from there the sequences were compared to other organisms to find similarities and possible related organisms. Then the protein was localized to find the location in the cell. Through this we expect to identify this organism and the genus it belongs to.

Biology Poster and eportfolio Session II

Gene Annotation of Protein Genes From the Bacterium Thermoplasma

Matthew Blackwell

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

There had been a prokaryotic cell that had been found in an coal mines that had not been sequenced before. Our group had the imperative to annotation and sequence the protein of this cell in order to learn about it. The reason that not much is known about this organism is because no one has yet to sequence its DNA. I propose that by looking at where the protein resides, it would tell us a lot about the organism. The process of being able to figure out the protein sequence start with using open reading frames on the gene, then plug it into several programs online to get the information about the nucleotide sequence, coordinates, the protein and its location in the membrane. The potential impact of the experiment is almost limitless, the information about this organism could tell us a lot about its environment, its ancestry the greater ecology around it.

Genome Analysis of 1,231 Base Pairs of the Thermoplasma Genome

Tasha Wilkinson
English Henry

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Beginning this gene annotation project our main goal was to better understand the genome of the archaea Thermoplasmata. We analyzed 2,321 base pairs between coordinates (48225...50546) from 3 putative, contiguous gene sequences. No one else has answered this research question or even had the opportunity to research this newly found bacteria. We're the first ones to analyze and explore the genes of this genome. The first step of our research was annotating the first 50,000 base pairs of the Thermoplasmata. After annotating the base pairs we began identifying open reading frames which we hoped would potentially represent a gene and searched for possible different start codons. By collecting data on the nucleic acid and amino acid sequences we examined and compared to find resemblances between the two sequences. We identified sealed regions of three proteins within our coordinates. Observing the proteins we then determined the cellular location whether it be located inside, outside, or traveling between the two through a transmembrane. The key impact in our research was actually identifying three proteins which are recognized within the genome of an archaea that hasn't been examined before.

Gene Annotation of a 1568 Base-pair Segment of the Thermoplasma volcanium Genome

Tyler Crockett
David Darrach-Chavez

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Many genomes have been sequenced but have yet to be examined. The genome that was given to us to analyze was the Thermoplasma volcanium. This is an organism that has had little to no study done to it, so the main problem of this experiment is that since nobody has examined this particular organism before we are overcoming the barriers of working with brand new genes that we have little information about. Our group was given three potential genes to examine interaction with the membrane of this specific organism. The three potential genes that were looked at started at the base pair 63,671 and ended at 65,239. Two of the three potential genes that were analyzed showed that there was no interaction with the membrane. These potential genes observed that seemed to have no interaction with the membrane could still be inside the cell, but the location simply cannot be determined with the data that was collected. However, the data found for one of the potential genes showed that there could be some form of interaction with the membrane which is exciting when studying an organism for the first time.

Biology Poster and eportfolio Session II

Thermoplasma volcanium Gene Annotation for Three Protein Coding Regions

Justin Archer
Jonathan Hanks

Faculty Mentor(s): Bob Sheehy Biology
Tuesday, April 19th Center for the Sciences Mainstreet Lobby 7:30 pm-8:30 pm

This study was performed to identify three different proteins of a section of newly sequenced genome of Archaea bacteria. The genome of this bacteria has been recently sequenced and no information is currently available on it. The study used sequence-based similarity data to compare this new sequence to already known sequences to help identify what the function and location of the protein may be. Two of these proteins were potential homologs to those found in Thermoplasma Acidophilum while the other one was predicted to be a cell division protein called FtsZ. Based on the data recorded from the cellular localized software, our data was in agreement with the function and location of that data found sequenced-based similarity data. Through this there will now be a better understanding of these three identified proteins and the overall, newly sequenced genome of the Archaea bacteria Thermoplasma volcanium.

Analysis of Loci 36, 37 and 38 From the Genome of the Bacterium Thermoplasma volcanium

Matt Potter

Faculty Mentor(s): Bob Sheehy Biology
Tuesday, April 19th Center for the Sciences Mainstreet Lobby 7:30 pm-8:30 pm

The genome of Thermoplasma volcanium is currently unknown. The study performed was to determine the location and function of three loci in the genome of this species, unknown genes 36, 37, and 38, to better understand the genetic code of Thermoplasma volcanium. This species is a relatively new discovery that has not yet had its genome identified or mapped. By comparing the genes of this unknown genome to known organisms, it is possible to begin determining potential functions and locations in the cell that the genes inhabit. Using online comparison programs, the three unknown loci were compared to a database of known genes to determine the possible functions and cellular locations they may have. Through these comparisons, this study determined that the three loci examined are likely to be located in the cytoplasm, with unknown genes 36 and 37 being hypothetical proteins, and unknown gene 38 being ferritin.

Calcium Oxalate in Petioles of Deciduous Leaves

Chris Smith

Faculty Mentor(s): Gary Cote Biology
Tuesday, April 19th Center for the Sciences Mainstreet Lobby 7:30 pm-8:30 pm

Microscopic intracellular crystals of calcium oxalate are produced throughout the plant kingdom. These crystals are thought to defend against herbivory, but other roles have also been suggested, including that they sequester calcium from cell walls during controlled breakdown of plant tissues. One case of such controlled breakdown is the abscission of spent leaves and floral parts, in which a layer of cells with weakened walls is formed. Calcium oxalate crystals have been extensively studied in leaf blades of many different plants, but there have been few reports of crystals in leaf petioles. In Dr. Coté's laboratory, we have been studying calcium oxalate levels in five species of autumn-deciduous trees, Ginkgo biloba, Acer saccharum, Crataegus mollis, Carpinus caroliniana, and Tilia americana. We here report that distal petiole tips, adjacent to the point of abscission showed dramatic increases in calcium oxalate over the summer into autumn, consistent with a role of crystals in preparing the petioles for abscission. T. americana, in particular, showed an abrupt increase in the weeks before abscission. In comparison, levels of calcium oxalate in leaf blades show no consistent patterns over the seasons, rising in G. biloba, dropping in T. americana, and staying generally constant in the other species.

Biology Poster and eportfolio Session II

Determining the Relatedness among Different Nests of Anelosimus eximius

Skyler Carrell

Faculty Mentor(s):	Tara Phelps-Durr	Biology
	Jason Davis	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Unlike most spiders, Anelosimus eximius from the Amazonian rainforest of Peru is a social, communally living, species. Groups of A. eximius appear to coordinate their foraging/hunting behaviors much like a pack of wolves or lions. They sleep together, hunt together, and thrive together. In turn, due to the large numbers of individuals in a single colony, and apparently low emigration rates, there is a high rate of inbreeding and therefore a high relatedness quotient within individual colonies. With this in mind, we hypothesized that relatedness will be inversely proportional to distance between colonies and that spiders would prefer to be closer to conspecifics from the same colony while avoiding those from different colonies, regardless of the distance between the colonies as well as the relatedness. For the behavioral aspect we captured individuals from multiple colonies and placed them in closed containers for 36 hours, taking images and recording behavior at 3 hour intervals. Images gathered in this way were analyzed based on distance between individuals and general activity patterns. Unexpectedly, within the behavioral test we found that colony of origin had no impact on social behavior. No matter the nest combination, they still continued to build a nest with one another. The next step is the genetic component to determine the spiders' kinship. To do so, 6 spiders from 4 nests (total of 24 samples) were collected and had their DNA isolated. A PCR was ran to amplify cytochrome oxidase gene 1 to then be sent off to be sequenced. Lastly, the sequences will be analyzed to determine the relatedness.

Expression and Function of CYP4F3 in Human Liver Cells

Arpitha Rajashekara
Sydney Jenkins

Faculty Mentor(s):	Peter Christmas	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Cytochrome P450 (CYP) enzymes play multiple roles in drug metabolism, lipid homeostasis, and immune regulation, particularly in liver. The expression of many CYPs is modulated by inflammatory cytokines, leading to unpredictable variations in drug pharmacokinetics and lipid metabolism during infection and inflammatory disease. CYP4F3 is an unusual member of the CYP superfamily that is alternatively spliced to generate two distinct enzymes. One splice form, CYP4F3B, is induced by the cholesterol-lowering statin drugs, but the implications for statin users are not known. The other splice form, CYP4F3A, regulates inflammation by inactivating a chemoattractant lipid called leukotriene B4. Changes in CYP4F3 gene expression and splicing during inflammation have potentially important consequences for drug usage and cell physiology, but have not been investigated. We are using real time PCR to measure changes in expression of CYP4F3A and 4F3B in human liver cells in response to statins and inflammatory signals. HepaRG cells are a new human liver cell line that can be terminally differentiated to cells that exhibit the phenotype of primary hepatocytes, but with less variability and more stability of liver-specific activities. This provides a model system that will enable us to identify the factors that regulate CYP4F3 transcription and splicing, and to determine how changing levels and ratios of the splice forms impact lipid metabolism and cell function.

Biology Poster and eportfolio Session II

Protective Crystals in the Flowers of Forbs from Virginia and Texas

Evan Grey

Faculty Mentor(s):	Gary Coté	Biology
	Chelse Prather	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

In many plant species, calcium oxalate crystals are present in cells, and can be seen through the microscope. Their main purpose is thought to be defense against herbivory. Although there have been many reports of crystals in leaf tissues; there have been relatively few reports examining flowers. We hypothesize that crystals might be used to protect the vulnerable reproductive tissues in flowers from insect herbivores. This was tested by Coté and Gibernau using 21 species in the Aroid family (Coté & Gibernau, 2012, American Journal of Botany 99:1231). We are extending this work to four other families, Asteraceae, Fabaceae, Convolvulaceae, and Apiaceae. Flowering specimens were collected in Lamarque, Texas, from a patch of coastal tallgrass prairie at the University of Houston's Coastal Center. Others were collected from open and woodland habitats in Wildwood Park in Radford, Virginia, or from disturbed habitats in Radford. We are examining flower parts for the presence of potentially protective crystals, and looking for geographical, ecological or taxonomic patterns in their distribution.

Extra-Pair Parentage in Eastern Bluebirds (Sialia sialis)

Brittany Justice

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Microsatellites have many applications in fields ranging from genome mapping to forensic DNA testing. They are typically located in non-coding regions of DNA and contain simple sequence tandem repeats. They are considered selectively neutral, which make them useful for many different types of analysis. In this study, microsatellites were used for evaluating parentage among family groups of eastern bluebirds (Sialia Sialis). The use of microsatellites for this purpose is especially useful due to the difficulty of parentage determination of S. sialis based on observational studies alone. DNA was isolated from samples collected from family groups at Selu Conservancy and the Riverway trail in Radford, VA. Locus specific primers were used to amplify microsatellites with PCR. Following PCR, gel electrophoresis was conducted to ensure that proper amplification occurred. ExoSAP protocol was followed in order to remove excess nucleotides and primers from PCR products prior to sequencing. Fragment analysis was then conducted using a Beckman Coulter CEQ-8000. With data collected from this analysis, extra-pair parentage in S. sialis can be evaluated. The goal of this study was to evaluate and standardize techniques and locus specific primers for use in parentage determination of S. sialis. This study will provide information that can be applied in other ongoing studies regarding behavior and physiology of the same population of S. sialis.

Gene Annotation of Three Potential Protein Coding Regions of the Thermoplasma volvanium Genome

Alex Hawks
Sandra Bryan

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Gene annotation is a new practice in genetics. Many genomes have been sequenced, but because this is relatively new, genomes of rare organisms have not yet been annotated. The genome of the organism, Thermoplasma volvanium, has been sequenced, but no one has looked at the proteins and their functions. We acquired sequence data from CBNI and identified three potential coding genes between bases 7691 to 8653. Comparing the proteins produced to the functions and locations of known proteins, we were able to estimate how the protein in question worked. All three of our genes produced ribosomal proteins. This is a significant discovery because proteins of similar function in this genome seem to be located near each other.

Biology Poster and eportfolio Session II

It Happens: the Relative Importance of Factors Regulating Animal Feces Effects on Ecosystems.

Annie Rudasill

Faculty Mentor(s):	Chelse Prather	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

The effects of adding animal feces to an ecosystem have historically been hypothesized to be positive for plant growth by supporting nutrient recycling. The higher nutrient quality of animal feces in comparison with litter has been expected to yield increased plant biomass by alleviating nutrient limitation. However, observational and experimental studies have returned mixed results, and the variation in the effects of added feces is largely unexplained. A variety of factors including nutrient availability in an ecosystem, trophic level of the feces producer, and type of plant material an animal consumes all likely regulate how plants will respond to added feces in an ecosystem. To test the relative importance of these factors, we collected data to conduct a meta-analysis to compare the effects of added feces in an ecosystem under varying conditions and outline a conceptual framework of how feces affects an ecosystem and what factors regulate the intensity of these effects.

Relationships between Baseline Corticosterone Levels, Parental Care, and Willingness to Take Risks in Male Eastern Bluebirds (Sialia Sialis)

Diego Arias **Taylor Layton** **Rebecca Sandlin** **Jake Shelburne**

Faculty Mentor(s):	Judith Guinan	Biology
	Jason Davis	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Parental investment theory implies that the parent that has contributed the most effort into the young will take more risks for them. Using data collected over the past seven years, we examined how eastern bluebird (Sialia sialis) parents differ in their willingness to take risks for their nestlings. Female bluebirds build the nest, lay and incubate the eggs, and brood the nestlings without help, so their investment in the young is far greater than that of the males. Because of this, we are focusing on the differences between the individual males' parental care based on their baseline stress levels and their willingness to take risks. During the bluebirds' nesting season, we captured the birds to take blood samples and measure their level of corticosterone – a stress response hormone. We used the order of capture of males – caught before the female or caught after the female – to represent their willingness to take risks. We used the corticosterone data to determine how baseline stress hormones relate to males' willingness to take risks. Finally, we examined the relationship between the number of feeding trips to the nest by the males and their order of capture. We used the number of feeding trips by each parent to represent parental care. We expected to find that males that were caught before the female would have lower corticosterone levels and make more feeding trips than males caught after their mates.

Are Stress Levels of Individuals Reduced by Dogs?

Brandi Norris **Ashley Graham** **Heather Pauley**

Faculty Mentor(s):	Sarah Redmond	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Stress is commonly associated with aspects of college life and can lead to many health problems. Understanding factors influencing stress levels in college age students can help researchers minimize the impacts of this stress. Our experimental group for stress will be people walking, running, or playing with dogs and our control will be people without dogs on Radford University campus. Having a pet dog has been shown to reduce psychological stress, and may, therefore, provide a boost to the immune system. We will be extracting saliva from 20 individuals with dogs and 20 individuals without dogs. We collected saliva samples from these individuals to be tested for stress levels. To test students stress we will perform an enzyme-linked immunosorbent assay using a primary antibody against the IgA protein. Our prediction is that people that are walking, running, and playing with dogs will have lower stress levels than our control group, and, therefore, higher levels of IgA.

Biology Poster and eportfolio Session II

Estimating Ingestible Size From Native Mammal Prey Species

Kayla McNeilly

Faculty Mentor(s):	Matthew Close	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Because snakes are predators that must swallow prey whole, determining the "ingestible" size of their prey is important to understanding the relationship between predator gape and prey sizes in nature. Previous studies with laboratory animals have shown that the ingestible size of rodent prey is smaller then the size determined through standard rodent measurements. We are applying techniques of measuring and estimating ingestible size to four rodent species native to the New River Valley–meadow voles (Microtus pennsylvanicus), northern short-tailed shrews (Blarina brevicauda), and white-footed mice (Peromyscus leucopus). Because the diet of native populations of snakes is often determined through stomach content and fecal (scat) analyses, in addition to measuring ingestible size, we are also measuring the lengths of skeletal elements of each rodent species and correlating these to our ingestible size measures. These correlations can then be used in field studies of snakes to better predict the sizes of prey that they are ingesting, and to more accurately describe the relationship between snake gape and ingestible prey size in nature. This research is currently ongoing and results will be presented in light of recent analyses.

Gene Annotation of the Bacterium Thermoplasma volcanium GSS1

Tony Torres

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

In this project the first 50,000 base pairs of Thermoplasma volcanium GSS1 were examined for the identification of possible start and stop codons and open reading frames that could potentially code for proteins with the goal of identifying conserved regions of proteins and possible cellular localization. In this contribution to the project, the Thermoplasma genome was analyzed at the 3 gene sequences "unnamed 57, 58 and 59" using the Basic Local Alignment Search Tool to search for similarities in amino acid sequences within the Genbank database, identify paralogs and for phylogenetic analysis; OFR finder to map open reading frames and IMG/EDU Gene Finder to search for alternative start codons. Phylogenetic analysis was done with the Phylogeny.fr website and the BLAST Explorer.

Difference of Stress Levels Among 400 Level Major Classes

Jillian Lates **Rachael Epperly**
Shannon Nasca **Amanda Roderique**

Faculty Mentor(s):	Sarah Redmond	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

This study examines the levels of salivary immunoglobulin A (IgA) amongst three different college majors in 400 level classes to determine for signs of a difference in stress levels. IgA antibodies are found in mucosal membranes throughout the body such as the respiratory and digestive tracts. Measuring the level of immunoglobulins, including IgA, is used to examine the immune system function. Low levels of IgA can be indicative of ongoing stress. We hypothesize the stress levels of undergraduate students in 400 level classes will vary by major. Our experiment will consist of three experimental groups: accounting, biology, and communication majors. We believe that due to the lab work associated with science classes that biology majors would show the lowest IgA levels. Twenty consenting and voluntary individuals will be sampled from each group and the amount of IgA protein present in saliva will be assayed to allow comparison of the immunological impacts of stress.

Biology Poster and eportfolio Session II

Acoustic Monitoring for Bats During Fall Swarm at Harpers Ferry National Historical Park, Harpers Ferry, WV

Keifer Titus

Faculty Mentor(s):	Karen Powers	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Since the onset of White-nose Syndrome (WNS) in West Virginia in 2009, monitoring the status of cave bats in the state has been a management priority. At Harpers Ferry National Historic Park, pre-WNS surveys had indicated the presence of northern long-eared bats (Myotis septentrionalis), Indiana bats (Myotis sodalis), and little brown bats (Myotis lucifugus). As part of a larger project to determine the status of these now-uncommon bats on the property and at other regional National Parks, we focused on fall swarm activity at Harpers Ferry. Our objectives for this project were to determine post-WNS species composition and relative activity of bats within the park during fall swarm. In late-September 2015, we deployed one acoustic detector (SMZC Songmeters) at a tailrace shaft in the town of Harpers Ferry, WV and two at Harpers Ferry Caverns within the park. We placed each detector within 30m of the points of entry/exit for bats, operated them for two months of continuous recording, and identified bat calls using the automated Kaleidoscope Pro software, Echoclass (v. 3.1) software and traditional, non-automated AnalookW software. Kaleidoscope Pro auto-identified six species with 32% accuracy when checked without a noise filter, and a 50% accuracy when checked with a filter. The maximum likelihood estimate by Echoclass identified with 99% confidence the presence of seven species. Hand identification using AnalookW software with noise filter found six species and nine species without filter. Two new species may be present in post-WNS conditions: silver-haired (Lasionycteris noctivigans), and evening (Nycticeius humeralis) bats.

Influences of Soil Characteristics on Insect Community Structure

Jalynn Best
Carly Stevens

Faculty Mentor(s):	Chelse Prather	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Insects influence and provide many important ecosystem services globally (e.g., they affect primary production through pollination and nutrient cycling, and influence breakdown of organic material). Looking at ecosystem-level processes can help us understand the factors that influence insect density and diversity. Soil moisture influences plant communities, which in turn may affect insect communities that depend on plants. To look at the relative importance of the factors affecting insect communities, we sampled soils and insects in 128 30m x 30m plots in a coastal tallgrass prairie in Texas in the summer of 2015. We wanted to know which soil characteristics (e.g., bulk density, soil moisture, root moisture, and percentage of roots in the soil) affect insect density and diversity. Insects were collected by sweep netting (100 sweeps per plot) and frozen until they were later identified to order. Soils were sampled in each plot (top 10 cm of the soil taken three times and pooled together), and we determined the percentage of roots, soil moisture, root moisture, and bulk density. We ran correlations between each soil characteristic and insect density and diversity. We also used multiple regression to determine if the relative importance of these factors to one another. Root moisture negatively affected total insect density. However, other soil variables did not predict insect density or diversity well. Better understanding what influences insect community structure can aide land managers in how to best manage grasslands for insect diversity.

Biology Poster and eportfolio Session II

Computational Modeling of KNOX Gene Silencing By AS1 And AS2 In Arabidopsis Thaliana

Nathan Pirino

Faculty Mentor(s):	Tara Phelps-Durr	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Natural leaf development in Arabidopsis thaliana relies in part on the proper expression of two plant proteins (ASYMETRIC LEAVES 1 and 2). A mutation in AS1 or AS2 leads to mutated leaf structure in A. thaliana due to certain cells switching between differentiated and undifferentiated. Undifferentiated cell state is maintained by a family of genes known as the class I KN1-like Homeobox (KNOX) genes. These KNOX genes are silenced by AS1 and AS2 interacting with the DNA, however the exact mechanism is unknown. The goal of this project is to predict the AS1 AS2 interaction at the KNOX gene site. The actual the structures of AS1 and AS2 have not been crystalized and are therefore unknown. The computational software I-TASSER can be used to generate 3D models of AS1 and AS2 based solely on their amino acid sequence. The models can be examined and their interactions can be predicted using the software ICM-Pro. These computational predictions will give insight as to the mechanisms by which AS1 and AS2 interact with each other and DNA. Results from this study can be used moving forward as these proteins are cloned and expressed in bacterial cells for the purpose of purification and crystallization.

Calcium Oxalate Crystals in Leaf Blades and Petioles of Deciduous Trees

Rae Flanagan

Faculty Mentor(s):	Gary Coté	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Calcium oxalate crystals are present in many plant species, although their precise roles in the plant are unknown. They have been suggested to protect against herbivory, or to facilitate abscission of plant tissue by removal of calcium from cell walls. Though there have been many studies on calcium oxalate crystals in leaf blades, crystals in leaf petioles have been largely overlooked. Leaves of five deciduous species, Acer saccharum, Ginkgo biloba, Tilia americana, Carpinus caroliniana, and Crataegus mollis, were collected during from spring, summer, and autumn by John Huth and Gary Coté. We have prepared leaf blades and petioles for microscopy and photographed the crystals. The number of crystals present in distal petiole tips, near the site of abscission dramatically increased as the seasons progressed in all species except G. biloba; in the latter species the size of the crystals noticeably increase. In contrast, there was no consistent pattern in leaf blades. The number of crystals increased in Cr. mollis, their size increased in G. biloba, and the numbers and sizes did not noticeably change in the others. These results are consistent with crystals playing in a role in leaf abscission.

Genome Annotation of a 3058 Base-Pair Segment of the Thermoplasma volcanium Genome

Adrianna McDowney **Courtney Gillespie**

Faculty Mentor(s):	Bob Sheehy	Biology
Tuesday, April 19th	Center for the Sciences Mainstreet Lobby	7:30 pm-8:30 pm

Many genomes have not been analyzed thus far. An example of this would be Thermoplasma volcanium. With the use of bioinformatics programs to analyze genetic sequences, different proteins were located throughout the genome. We analyzed base sequences between 4397-7455 and found 3 potential proteins. Subsequently, we determined cellular localization of the proteins. Two of the discovered proteins were located in the cytoplasm and the third was located within the membrane. In analyzing this set of sequences, we hope to understand its function, makeup, and evolutionary path.

Wednesday, April 20th

Art History Symposium
Heth 014 12:00 pm-2:00 pm

Geospatial Science Poster Session
Center for the Sciences M Lobby 2:30 pm-4:00 pm

Maker Event – Build your own smartphone microscope!
Center for the Sciences M Lobby 3:00 pm-5:00 pm

Scientific Oral Presentations
Center for the Sciences M073 4:00 pm-6:00 pm

Chemistry and Geology Poster Session
Center for the Sciences M Lobby 5:30 pm-7:00 pm

Health and Human Performance Poster Session I
Heth 014 3:00 pm-4:00 pm

Health and Human Performance Oral Presentations
Heth 022 4:00 pm-4:20 pm

Health and Human Performance Poster Session II
Heth 014 4:30 pm-5:30 pm

Information Technology Oral Presentations
Heth 016 4:00 pm-4:40 pm

Interdisciplinary Oral Presentations
Heth 016 5:00 pm-6:00 pm

Arctic Geophysics Oral Presentations
Center for the Sciences M073 6:30 pm-8:30 pm

Art History Symposium

Graphic Design Media: Posters and Typography through History

Faculty Mentor(s):	Roann Barris	Art
	Carlee Bradbury	Art
Wednesday, April 20th	Heth 014	12:00 pm-2:00 pm

Two classes are engaged in this exhibition project. One class is the history of graphic design and the other is the history of posters. In both, students are investigating the evolution of advertising, print media, and the field of graphic design. As part of this investigation, students are expected to recreate historic art works with the eventual goal of making their own in the style of the original. The exhibition will be accompanied by information posters, explaining the histories, animations doing the same, and textual labels. A third class will be involved in the installation of the exhibition.

Geospatial Science Poster Session

Shoreline Change and Sedimentation of Claytor Lake

Renee Dauerer **Zachary Yarbrough**
Cadie Goulette **Tyler Covarrubias**
Sean Dyer

Faculty Mentor(s):	Stockton Maxwell	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

This project was conducted to help the organization, Friends of Claytor Lake, in identifying areas of significant sediment build up and erosion in two areas of interest in Claytor Lake. To answer the question, we had three methods of analysis: The first was to conduct land cover change analysis around Claytor Lake by using remotely sensed images from June 2000 and June 2015. The second method was to use bathymetric data provided by Friends of Claytor Lake, and construct and underwater topographic map to identify shallow areas that indicated sediment buildup. The third and final method was to conduct a shoreline change analysis by overlaying a digitized shoreline of areas of the lake and create a change map to show where there had been sedimentation buildup and where there had been erosion. The results of the land cover analysis change found that water had decreased by 1.1%, grassland decreased by 2.48%, forest decreased by 13.38% and urban areas increased by 0.79%. The results of the bathymetry data showed that areas with significantly more shallow water were across from the cut banks. Finally, the results from the analysis of shoreline change found that in the southern area of the lake, shoreline change totaled to 119.78 acres, and in the Northern area shoreline change totaled to 561.44 acres. The results of our research indicate that areas of the lake are following a course more similar to a river, causing this changed shoreline.

Mapping the Effects of Change in Landscape Characteristics on Stream Channel Position Using Multi-Temporal Imagery: Peak Creek, Pulaski County, Virginia

Cadie Goulette`

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

This project used geographic information systems (GIS) to track changes in the stream channel of Peak Creek as relates to a variety of landscape characteristics in adjacent riparian buffers. The composition of riparian buffer zones directly affects water quality, and as Peak Creek is the largest tributary of Claytor Lake, the health of this stream affects the health of the New River. To understand the effects of various landscape characteristics, this analysis separated Peak Creek into three segments: (1) from its origin until it reaches urbanized areas, (2) the segment during which it flows through urban areas, and (3) from the urban areas to Claytor Lake. Using a combination of remotely sensed imagery data, a digital elevation model, and soil data, this study analyzed the effects of land use change, slope, and soil type upon stream channel movement. This analysis will culminate in a research paper detailing the results, conclusions, and implications for further research.

Geospatial Science Poster Session

Measuring the destruction of War with Supervised Classification using 30 meter resolution Landsat 8 Imagery

Amrit Singh

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Charles Manyara	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

The purpose of this research is to determine if Landsat 8 is able to detect the effects of war on the ground. The objective is to collect remotely sensed data from Landsat 8 and focus on a specific warzone, and use spatial resolution configurations to determine if Remote Sensing can detect the effects and damages of war from space automatically. This is important because remote sensing is a high-tech developing system which can deliberately "think for itself." Using different bands the system will enable us to look at a destroyed site from battle with multi-resolution bands such as spectral, radiometric, temporal, and spatial resolutions. Using these bands, we will build a picture of what a damaged area will look like, and use satellite detection over a wide image to determine where the most damage effects of war are located within the case study area. The results are to find designated 30m pixels which are pre-determined by the detection computation in the system, which can decide its own attributes of which locations on the ground in Syria have suffered from destruction of war.

Changes in Macroinvertebrate Composition Over Time in the Little River in Relation to Fish Populations

Andrew Witt

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Charles Manyara	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Stream ecosystem health is linked to water quality and is a parameter looked at when determining if a stream is impaired. Clean water will be a problem for our future generations so taking steps now is crucial to successful stream down the road. The purpose of this research is to study freshwater streams' macroinvertebrates and look at changes in stream composition over time while also looking into fish populations present. The presence of trout in water gives the indications of health as changes in the pH and temperature in the water. Using a simple survey template from the Save Our Streams (SOS) macroinvertebrates will be collected as a proxy for water quality. Shocking of streams can be done to count a sample of the fish population present as well. Save our streams data monitors the water quality and attempts to educate people about the importance of clean water. Data collection from the three sites will be compared with past samples from the same study area. The change of macroinvertebrates and what type give an idea of the health/composition of the ecosystem. The larger amounts of stone, may and caddis flies present then the water composition is considered healthy. The higher the amount of leeches and other worms such as the flat worm represent poor conditions as the tolerance of these species are high. Most of a trout's diet comes from these different types of flies so it will be interesting if there is a connection between the two. The study sites will be located along the Little River that is located in Floyd county Virginia and is a first order stream that drains into the New River. Gathering SOS data is important in accessing the water in a bias way that can give an idea of its quality. Given the number of possibilities for non-point source pollution this is crucial to look into the hydrogeology that goes into freshwater environments. This study could can be repeated multiple times at different study regions depending on what you are looking for and will be continued to be used more in the future.

Geospatial Science Poster Session

The Internal Migration of African Americans to the South, 2000-2010

Cienna Taylor

Faculty Mentor(s):	Dr. Andrew Foy	Geospatial Sciences
	Dr. Grigory Ioffe	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Over the past twenty to thirty years researchers have been examining the role of migration within the United States. They were able to analyze that the U.S. had the highest patterns of inter-migration in developed countries, but also African Americans were the largest demographic group to inter-migrate to the south after the 1970s. This study will statistically identify the driving forces behind the internal migration patterns of African Americans from the northern United States to the southern United States during 2000 and 2010. Data from this study will identify the factors behind why African Americans were the largest demographic group to inter-migrate to the south during 2000 and 2010. To analyze patterns of migration, data from the Current Population Survey will be used to 1) locate where a person resided one year prior to taking the CPS, 2) the location of where the person is currently residing at the time of the latest CPS, and 3) the motivating factors for moving recorded in the CPS of each person. It is hypothesized that results from the Statistical Package for the Social Sciences (SPSS) will show a statistical significance in the difference between the demographic groups who moved south between 2000 and 2010, based on previous research and literature on the subject. The reported steady stream of migration to the south since the late 1900s has increased the southern economy and has led to a higher population of African Americans in the south.

Using Remote Sensing to Analyze Growth Trends of Ailanthus altissima in the New River Valley

Donovan Vattelana

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Charles Manyara	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

The Tree of Heaven is a common invasive tree species in Virginia that has caused damage to ecosystems and urban infrastructure. The tree frequently spreads to deforested areas. The overall purpose of this research is to develop two geographic models that can determine if the Tree of Heaven has extended its geographic range to areas that it previously was not located from 2003 to 2014 in the New River Valley area of Southwestern Virginia. This study is significant to forest conservation efforts to protect natural ecosystems from the spread of this particular invasive species. Multiple spectral analysis algorithms will be implemented to represent the data for spectral comparison between the two years using multiple remote sensing techniques. A hypothesis for how the result may reflect an increase in the geographic range of the Tree of Heaven to new areas. This study could be used by conservation agencies and urban planners to help mitigate the spread of this species to different areas.

Geospatial Science Poster Session

Comparing Vertical Bridge Clearance from Total Stations Measurements to Terrestrial LIDAR Scans

John DeGroot

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Charles Manyara	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Every two years each bridge in America has to be examined for structural integrity, part of this is the vertical bridge clearance. The goal of this project is to assess if terrestrial LIDAR measurements of bridge clearances is significantly different from that of a Total Station. Measuring bridge clearance accurately is important because inaccurate measurements can lead to vehicles striking bridges, which is dangerous to drivers and the structural integrity of the bridge. The two different methods of measuring the vertical bridge clearance will be a Total Station and a Leica ScanStation C10 LIDAR. The bridge in the study is a railroad bridge over New River Dr. in Radford, VA. The LIDAR will scan the bridge at three different point densities. Bridge clearances list precision of the clearance down to .025 meters. However, this analysis will look at changes down to .001 meters to understand the differences between Total Stations and terrestrial LIDARS. It is hypothesized that the highest resolution laser scan will provide the best measurements. The findings from this research will help plan the most cost and time efficient method to ensure the safe passage of vehicles under bridges.

Proximity of Toxic Release Inventory Sites to Areas of Low Income in the Greater Richmond Area.

Katherine Dickerson

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Richard Roth	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Environmental equity is the fair treatment in development and regulations to all people, regardless of a minority status or low income. However, this unfair treatment has continued to be a problem for several places throughout the United States. Industrial facilities are known to emit pollutants and have been included in a program, under the Right-To-Know-Act, called the Toxic Release Inventory (TRI). This releases the pollution data from these sites to the public. The objective is to use TRI data in conjunction with Census and building data to analyze the relationship between low income living and the proximity to facilities releasing pollutants in Richmond, Virginia. Exposure to some of these substances is linked to a myriad of diseases, some potentially being fatal. It is becoming necessary to look into who is being exposed and what toxins are being released. Euclidean distance is used to analyze the distance of these facilities to surrounding buildings with a maximum distance of 5 kilometers. It would be possible to compare the demographics using the various distances assigned to the buildings throughout the city. The results are used to identify areas around TRI sites, and their demographic status. This includes the main focus which is income, as well as other variables such as age and ethnicity. A geographic weighted regression will predict the distance of the TRI sites using the variables like income. Pollution is a serious issue as we learn more about how it affects the human body. Concerns arise as we discover that chemicals emitted may be dangerous and solutions are needed.

Geospatial Science Poster Session

Analyzing Indoor Navigation using 3D Geographic information systems (GIS)

Julian Adams

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Navigating with mobile devices and computers was a transformative technological advancement and now is an essential part of everyday life. However, this technology is limited in 3D environments such as buildings. Currently, many buildings models use 2D floor plans for routing purposes. Geographic information systems (GIS) can now create networks inside of buildings, which could improve routing for various applications, such as emergency response. This research analyzes different methods a subject might use to maneuver inside a building. A series of experiments using distance and time will determine whether 3D navigational processes are faster than the current routing method utilizing floor plans. This research will provide important information about map cognition and how new techniques for providing direction can improve navigating.

Radford University Defined Dendrology

Katherine Sellers **Devon Burton**

Faculty Mentor(s):	Stockton Maxwell	Geospatial Sciences
	John Kell	Geospatial Sciences
	Andrew Foy	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

The Radford University campus has approximately 800 trees and 85 different tree species. Most people walk around campus not knowing some of the basic information about the trees. Currently, the Radford University Department of Geospatial Sciences Science is in the process of creating an interactive tree map of the dendrology on campus, with help from the Department of Biology. This map will be beneficial to the Radford University community and grounds management because of its ability to provide information about what trees are where. The external interactive tree map allows for community interface and the supporting database facilitates for the teaching of the dendrology on campus. Our project can assist the University's goal to become a Tree Campus and be recognized by the Arbor Day Foundation. An interactive map tour of the trees on campus was also created using the database mentioned above and an app created by a Radford faculty member, Dr. Matthew Dunleavy, called FreshAiR. We have used tree species information from the tree species database and map to decide which tree species to include on the tour. The app itself sets up an augmented reality on a phone or tablet so that the user can see where they are on campus and on the tour. As users go through the tour to different parts of campus some basic information about the tree species like genus, species, common name, general characteristics, and if it is native, or non-native will be given. A web link will also be included so users can find out more information about that species and other species closely related to it.

Spatially Analyzing the Relationship Between Health and Frequency of Medical Check-Ups Based on Demographics

Marcus Grinkley

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Charles Manyara	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Health care is a privilege that should be readily available to everyone, despite their age, race, gender, education, income, or location. This study aims to discover whether or not geography and demographics have significant effects on the overall health of individuals in the New River Valley. Unfortunately, some individuals do not receive adequate health care, which is why this study is important. Public data from the Medical Expenditure Panel Survey (MEPS), regarding physical health, can be used to analyze trends in health based on demographics. That data can be used in a Geographic Information System (GIS) to do a spatial analysis which will identify which demographic characteristics tend to have the most influence on physical health. The results of this study can be used make improvements on health care so that everybody has adequate health care. Hopefully this research study will lead to improvements in availability and cost of health care.

Geospatial Science Poster Session

Proximity of Toxic Release Inventory Sites to Areas of Low Income in the Greater Richmond Area

Katherine Dickerson

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Richard Roth	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Environmental equity is the fair treatment in development and regulations to all people, regardless of a minority status or low income. However, this unfair treatment has continued to be a problem for several places throughout the United States. Industrial facilities are known to emit pollutants and have been included in a program, under the Right-To-Know-Act, called the Toxic Release Inventory (TRI). This releases the pollution data from these sites to the public. The objective is to use TRI data in conjunction with Census data to analyze the relationship between low income living and the proximity to facilities releasing pollutants in Richmond, Virginia and surrounding counties. Exposure to some of these substances is linked to a myriad of diseases, some potentially being fatal. With these findings, it is becoming necessary to look into who is being exposed and what the toxins are being released. Multiple buffers will be created at varying distances. The proposed distances are 0.5 km, 1.5 km, and 3 km. These various distances will allow the user to separate the census tracts affected and break down the analysis even further. It would be possible to compare the demographics from 0.5 km away to 3 km away. A certain buffer with its specific distance can be chosen and the census tracts within that distance will be selected.The results are to identify areas around TRI sites, and their demographic status. This includes the main focus which is income, as well as other variables such as age and ethnicity. Pollution is a serious issue as we learn more about how it affects the human body. Concerns arise as we discover that chemicals emitted may be dangerous and solutions are needed.

Distinguishing Water Quality Differences in the Chesapeake Bay and the New River

Laura Smallman

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Maria Ball	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Water quality in the New River and Chesapeake Bay watersheds has steadily declined due to agricultural practices, land development, and other anthropogenic behaviors. Human actions do not simply degrade water they degrade the entire watershed. Water contamination leads to the degradation of an entire aquatic food web. This study focuses on the aquatic life that are susceptible to pollution and how one can assess water quality based on the contaminants found in fish species and the advisories/restrictions set forth for consumption of species. The use of Geographic Information Systems (GIS) will be used in this study to assess water quality in the Chesapeake Bay watershed and the New River watershed. Mapping software, ArcGIS, will display spatial relationships that include information on impaired streams within each watershed, possible causes of impairment, fish species affected, and fish advisories/restrictions. The expected results for this research is spatial data that shows varying fish species advisories/restrictions in the Chesapeake Bay watershed versus the New River watershed and predicting why the watershed water quality impairments are different through understanding the sources of pollution in each watershed. Determining water quality using fish as a bioindicators helps agencies more accurately portray the biological and ecological condition of aquatic systems.

Geospatial Science Poster Session

The Change In The Agricultural Landscape In Montgomery County, Virginia

Madeline Harrover

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Charles Manyara	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Since the settlers landed in Jamestown roughly 400 years ago Virginians have depended on agriculture as a way of life. The purpose of this study is to identify the change in the agricultural landscape of Montgomery County, Virginia, this includes land use, land cover, and the type of agriculture. Agriculture is important for many reasons. It is a source livelihood, contributes to the national revenue, supplies food for humans and animals, and is important to international trade. Agriculture is also a source of raw materials, provides employment, and food security. Remote sensing data, Montgomery County records, reports from the U.S. Census of Agriculture, and field data will be analyzed to investigate the change in the agricultural landscape over time. It is hypothesized that more land is currently being used in agriculture than in the past in Montgomery County. The results of this study should also show what crops are bring grown and what livestock are present. Examples of these would be triticale, wheat, corn, soybeans, dairy cattle, beef cattle, hogs, sheep, and more. The results for this study could be used by farmers, farmland owners, lenders, and policy makers; it matters to them because it directly involves them and their everyday lives. With the United States population rises more each day there is an ever present demand for more food and raw materials; there is only one way to successfully provide these items, and that is to continue producing more products per acre and farm more land.

Impact of Land Use/Land Change on Water Quality in the Middle James River Watershed

Otis Nicholas

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

The Middle James River Watershed is one of the most important watersheds in the state of Virginia because it is a direct tributary of the Chesapeake Bay. The watershed is 6,190 square miles, and runs through 15 counties. The purpose of this research is to investigate how the increase in urbanization has affected the water quality in the watershed. This watershed has gone through periods of serious drought and above average precipitation in the region. Decreasing impervious surfaces in the watershed it will result in less flooding, more canopy cover, and overall better water quality. This study will analyze different water quality monitoring stations throughout the watershed, looking at different water quality parameters, and using statistical analysis such as PLS Regressions to look at the relationship between urbanization and water quality. PLS regression creates a model by projecting the independent and dependent variables using space and time. The dependent variable that will be used in the model will be water quality stations, and the independent variables will be temperature, precipitation, and others. The results of this study will show what areas have had the most impact of water quality due to urbanization. This study is extremely important due to the direct implications of the Chesapeake Bay. Sediment buildup in streams have played a major role in the Chesapeake Bay, much of the incoming sediments comes from streams flowing into the bay. If we can fix major watersheds that feed into the bay, then the health of the Chesapeake Bay will improve, thus protecting an important resource for future generations.

Geospatial Science Poster Session

Analysis of Ecological Disturbance-Growth Relationships Using Tree-ring Width Chronologies of Eastern Hemlock in Southern West Virginia

Stephen Price

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Stockton Maxwell	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

Dendrochronology is the science of tree-ring dating based on analyzing patterns of growth rings. By analyzing these growth patterns, scientist have been able to reconstruct disturbance events in past periods, well before modern data recording practices were established. The objective of this research is to analyze ecological disturbance factors affecting tree growth to determine if there is a correlation between tree growth and disturbance regimes. Disturbance events have an effect on forest structure and tree canopy dynamics, which influence growth release and suppression across a forest stand. It is hypothesized that there is a direct correlation between disturbance events and tree growth. The study site has hosted disturbance events ranging from severe windstorms to pest infestations. The research will provide insight to the relationship of disturbance and tree growth in this region. This research used standard dendrochronological industry methods and software to investigate correlations between disturbance regimes and tree growth. This research produced a unique spatial dataset of tree growth for an eastern hemlock (Tsuga canadensis) old growth forest stand in southern West Virginia, which will be part of a national dendrochronology database for future studies. The findings from this research will be used to develop strategies for conservation of forest systems, and establishing a link between disturbance regimes and radial tree growth.

Analysis of Historical Change of Forest Fragmentation in the City of Radford, Virginia

William Creasy

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Jennifer Whiteis	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	2:30 pm-4:00 pm

The loss of greenspace has become a major issue over the last 20 years. This study proposes to examine if forest canopy cover in Radford, Virginia has become more fragmented over time and if so whether any change can be attributed to urban development or transportation infrastructure. A thorough understanding of the urban tree canopy in Radford City will help future planning efforts, especially in terms of green infrastructure. This research involves using remote sensing to determine land cover and using a series of spatial analysis algorithms that quantify forest fragmentation. The resulting spatial datasets are classified by group (forest core, peripheral forest, and forest patch) and sub-group. Because forests tend to fragment before it disappears these datasets concerning fragmentation levels are important to city planning. These datasets will then be used to analyze the changes in the spatial pattern of Radford's urban forest. This data and the findings from this research will be part of the City of Radford's Green Infrastructure Plan.

Maker Event – Build your own smartphone microscope!

Wednesday, April 20th Center for the Science Main Street Lobby 3:00-5:00pm

Do you like to build, create, make, or hack things? Do you prefer to create your own solution to some problem rather than just buying something? You might be a MAKER! Students and faculty from across departments at Radford are coalescing around interesting to learn by doing – integrating 3D scanning and printing, electronics, art, craftwork, traditional shopworn, science and technology – for fun, profit, or in the service of research. Come find out more about the opportunities, and leave with a microscope that uses your smartphone's camera to capture nice quality images and videos. First come, first served!

Scientific Oral Presentations

Role of F365 in inhibitor binding by Escherichia coli beta-glucuronidase

Lindsay Lesure

Faculty Mentor(s):	Kimberly Lane	Chemistry
Wednesday, April 20th	Center for the Sciences M073	4:00 pm-4:15 pm

E. coli beta-glucuronidase is associated with severe side effects caused by the chemotherapy pro-drug CPT-11. CPT-11 is converted to the toxic active metabolite SN-38, which is a topoisomerase I inhibitor. In the liver, SN-38 is glucuronidated to SN-38G. SN-38G then enters the gastrointestinal tract, where bacterial beta-glucuronidase cleaves the glucuronide group from SN-38G, causing intestinal damage. The commercial inhibitor Z-77 blocks the interaction of beta-glucuronidase and SN-38G and has been shown to decrease the damage associated with CPT-11. E. coli beta-glucuronidase contains a functional loop not found in the human form of the enzyme. This so-called bacterial loop controls species selectivity of the Z-77 inhibitor. A phenylalanine (F365) in the bacterial loop is thought to be essential to the binding of Z-77. To determine the importance of this phenylalanine, the residue was systematically mutated to tyrosine, tryptophan, alanine, and leucine. The effect of these mutations of Z-77 binding were characterized by a standard phenolphthalein glucuronide enzymatic assay. This project will provide a better understanding of the binding of the Z-77 inhibitor and may aid in improving Z-77 and other inhibitors alike.

Kinematic Analysis Using Structure-From-Motion Software and Unmanned Aerial Vehicles

Robert Huber

Faculty Mentor(s):	Chester Watts	Geology
Wednesday, April 20th	Center for the Sciences M073	4:15 pm-4:30 pm

Kinematic analysis is a critical component of a complete rock slope stability analysis. Traditionally, the data collection process for a kinematic analysis has included climbing/rappelling on slope to record the dip direction and dip of prominent discontinuities using a Brunton Compass. This process can be time consuming and presents hazardous work conditions to those acquiring data. Recent developments in photogrammetry and umanned aerial vehicles (UAVs) allow for safer and more efficient data collection. Structure-From-Motion software creates point clouds from 2-D images which can be used for extracting geologic structure data using software typically used in interpreting LiDAR data. This is an overview of the software, equipment, and workflow used in this upcoming technique in studying rock slope stability.

Scientific Oral Presentations

The Peak Creek Watershed

Elise Brown **Kendall Carlson**
Brandon Podruchney **Andrew Summers**

Faculty Mentor(s):	Stockton Maxwell	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences M073	4:30 pm-4:45 pm

Peak Creek, located in Pulaski County, Virginia, is a major tributary of Claytor Lake and a valuable ecosystem to the area. We will be working alongside Friends of Peak Creek, a nonprofit organization, to create green corridors, restore current corridors, increase walkability, and provide mapping of assets and risks. We will be conducting spatial analysis of the 100-year floodplain and land ownership parcels of the Peak Creek watershed. Our focus is specifically on parcels that are classified as industrial in both the past and the present and flood patterns of the creek. We plan to draw conclusions between water runoff from industrial areas and water quality of the creek. Our results will be compiled into a geodatabase that will be available on ArcGIS Online.

Green Infrastructure Planning for the City of Radford

Ezekial Jeansonne-Moore **Miranda Majette**
Zachary Tagai **ET Truman**

Faculty Mentor(s):	Stockton Maxwell	Geospatial Sciences
	Andrew Foy	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences M073	4:45 pm-5:00 pm

We are working closely with the City of Radford to further its commitment to making environmentally sound decisions with respect to its current land management, as well as its future development and growth. The objectives we have identified are: cataloguing environmental risks and assets to the city by examining of existing greenspaces, natural waterways, and potentially threatened habitats. Examining average walking distance to parks through performing network analysis of existing streets, sidewalks, and trails to determine if we can increase their accessibility. Improving local water quality and reduce storm water runoff through reduction of impervious surfaces in the city, reclamation of vacant properties, and the increase of connected greenspaces. We will be using data from a number of sources. Tree canopy cover maps will aid in increasing connectivity among greenspaces. Stream and river information from the USGS can be used to improve water quality. Parcel and zoning information from the City of Radford can be used to identify vacant lands and determine environmental risks/assets. Parks information provided by the city will allow their connectivity to be analyzed and walkability improved. Wildlife data obtained through the Virginia Department of forestry will aid in the protection and construction of habitat within the city. This partnership with the City of Radford is important because green infrastructure planning reduces not only the upfront monetary costs of development and expansion, but also its negative impacts on the surrounding environment.

Friends of Claytor Lake

Shane Carper **Scott Carroll** **Josh Morris**

Faculty Mentor(s):	Stockton Maxwell	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences M073	5:00 pm-5:15 pm

Our group and the conservation group, Friends of Claytor Lake (FOCL) are teaming up to provide mapping products of how sedimentation deposition and change in land use over time of Claytor Lake has affected the surrounding communities and environment. Our goal is to use the National Land Cover Database, USGS Streamflow data, and data collected in the field to determine how land use has changed over time and what potential risks threaten Claytor Lake. Using various analysis methods that we learned in the classroom, we can reveal patterns and clues as to why Claytor Lake has undergone the numerous issues that it has in the past and prevent further issues by providing valuable geographic information to the Friends of Claytor Lake. We expect to see how the change in land use over time has affected the lake and the surrounding environment and possibly pinpoint the areas of concern. Obtaining information on how land use has changed can be a very useful tool for the Friends of Claytor Lake because it will allow them to further understand the dynamics of the lake and the surrounding rivers and creeks. Understanding these dynamics is detrimental to how the lake's health is affected by humans and how we have changed the surrounding landscape and will provide the necessary tools required to mitigate human interference.

Scientific Oral Presentations

Communal Connectivity Study using GIS for The City of Radford

Robert Huber **Donald Stewart**
Kyle Walker

Faculty Mentor(s):	Stockton Maxwell	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences M073	5:15 pm-5:30 pm

The City of Radford is a town in Southwest Virginia with approximately 17,441 residents. It is roughly 10 square miles in size and lies next to the New River, arguably the oldest river in the world. The city has developed a comprehensive planning document with some goals they wish to meet by the year 2030. Amongst the city's goals that have been outlined in the established plan are preserving natural beauty, protecting the heritage of the city, and developing communal connectivity. Geospatial Sciences Information Systems (GIS) can play an integral part in assisting in planning efforts, and students in an intermediate GIS course at Radford University have been tasked with aiding the City of Radford by producing risk and asset maps. Historic and cultural features within the community will be identified and used for a network analysis. This analysis will allow us to see how well the connected the City of Radford is to its heritage and aid the city in future planning. The data for this study will come from previous studies performed at Radford University and the City of Radford. This is a progress report of the group project to showcase how GIS tools and analysis are able to aid in planning a better community and will assist the City of Radford meet its goals for 2030.

Creating a Digital Outdoor Recreational Activity Map Through a User Needs Approach

Benjamin Allamong

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
	Andrew Borak	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences M073	5:30 pm-5:45 pm

Radford University Outdoors (RUO), a student outdoor program, has a poster-sized map of whitewater, hiking, and camping areas in southwest Virginia. That map, while still useful, has been underutilized recently due to increased use of digital maps. The purpose of this research is to apply a user needs approach to creating a digital outdoor recreational map detailing pertinent information and locations of RUO sponsored trips. A digital map will not be bound by borders of a printed map, allowing more information to be displayed, which can include all the trips that RUO offers during a semester. A social survey was created using Qualtrics Survey Software, an online survey creator and data analysis program. After analyzing the data through the available statistical packages on Qualtrics, the wanted spatial data was mapped through Geographic Information System (GIS) software, made public and a URL created that can be presented on RUO's website. The results of the survey were used to create a map with the content that was wanted the most for users. This map can be used to allow participants or future participants to become familiar with the trips offered before registering.

NBA Expansion or Relocation: Study using a Location Model to Predict Ten Suitable Cities

Sean Dyer

Faculty Mentor(s):	Andrew Foy	Geospatial Sciences
Wednesday, April 20th	Center for the Sciences M073	5:45 pm-6:00 pm

The purpose of my research is to model the process of expansion or relocation for professional leagues, and to create a location model that would predict the ten most suitable cities for the NBA. The model proposed will effectively provide a statistical analysis for predicted cities to help make a decision for the location of a new professional franchise. My research will create a model that will use the most current census data, economic data and franchise data by city to help predict new locations. This will predict 10 cities that have the strongest relationships with ones with and without NBA franchises demographically and economically. I hypothesize that the ten most suitable cities will include: Las Vegas, Seattle, Louisville, Kansas City, Pittsburgh, St. Louis, Omaha, Mexico City, Norfolk, and Nashville. The model produced will provide a methodology that can be used universally by professional leagues and franchises to help with decision making during the relocation or expansion process in the future.

Geology Poster Session

Quantitative GigaPan Virtual Field Trips: Helping Boost Math And Logic Scores In First-Year Geology Courses at Radford University

Dylan Philippart

Faculty Mentor(s):	Parvinder Sethi	Geology
	George Stephenson	Geology
	Viktoras Liogys	Geology
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

GigaPan technology was originally developed by NASA and Carnegie Melon University, for providing a platform for users to stitch hundreds of individual images together into a single, extremely high-quality panorama. Such a panorama allows users to explore the encapsulated environment as they please, zooming into areas of the panorama at extremely high magnifications, while maintaining high-definition resolutions. Such a platform is ideal for developing data-based, "Quantitative GigaPan Virtual Field Trips" for various National Parks across the United States. These field trips focus on Geology 100 and Geology 105 concepts, in the form of a lab exercise. This research advances the proven but hitherto qualitative, GigaPan technology by integrating a dominantly quantitative and data collection mode. Users are given information about a geologic outcrop, and are then asked to perform measurements and collect data at specific areas throughout the panorama, indicated by a marker/field scale. Such a marker is graduated in metric units, so that users may measure individual rocks, or geologic features throughout the exercise. Users are guided through performing basic statistic calculations, and through the process of the scientific method, in order to educate them on both building and testing a hypothesis. As geology is primarily a visual science, the goal of creating such an exercise is to simulate a field research experience.

Paper to Pixels: Modernizing a Legacy Geologic Map using GIS/GPS Technology

Antonio Conde

Faculty Mentor(s):	Elizabeth McClellan	Geology
	George Stephenson	Geology
	Robert Whisonant	Geology
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

The Blue Ridge Scout Reservation (BRSR) in Pulaski County, Virginia, is a 17,500 acre scout camp located in the Blue Ridge province of the southern Appalachian Mountains. In fall 2015, scout officials asked the Geology Department at Radford University for assistance in preparing a geologic guide for inclusion in the resources section of the Reservation Conservation Plan. Previous detailed geologic mapping by McDowell (1968) showed that metasedimentary rocks of the Chilhowee Group (Upper Neoproterozoic-Lower Cambrian) compose nearly all of the BRSR's bedrock geology. As the basis of our geologic guide, we determined to convert McDowell's work into an updated, contemporary geologic map of the BRSR using Geographic Information System (GIS) and Adobe Illustrator software. Camp management provided pivotal electronic spatial data, such as the property boundary and the location of trails, that we integrated into the GIS map. We used an Environmental Systems Research Institute world topographic map layer to establish a topographic base. This particular layout, although conformable, was only temporarily in place until the most effective method of transfer to United States Geological Survey quadrangle topography could be executed. Adobe Illustrator provided the capabilities to upload the McDowell legacy map, trace the contacts and overlay the result onto the GIS map. The final map will be checked in the field to reevaluate and/or redraw McDowell's original contacts.

Chemistry Poster Session

Purification and Identification of AS2 Arabidopsis Thalania

Anthony Kwan

Faculty Mentor(s):	Kimberly Lane	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

The mammalian HIRA gene encodes a histone-interacting protein which binds to purified core histones which prevents DNA from being unwound. In mammals once the HIRA gene is suppressed it remains suppressed for the duration of the life of the organism. Although in plants the HIRA gene is able to be turned off and on at the same time. This is due to a plant's growth cycle requiring the stem apical meristem (SAM) to create leaves, roots, flowers, and branches when it is in the warmer months of the year. SAMs are regulated by KNOX genes such as AS1 and AS2. By crystalizing AS2 the 3D structure of the protein can be confirmed by x-ray crystallography and compared with the 3D computational analysis of the protein. Once the 3D structure of the protein has been mapped researchers would be able to identify how AS2 interacts with other KNOX genes or other substrates such as DNA to prevent differentiation in plants and animals.

Cost-effective Carbon Nanoparticle Coated Polyurethane Sponge for Water Purification

Tyreek Stewart

Faculty Mentor(s):	Francis Webster	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Water contamination is a common problem faced globally. There are a wide variety of toxic contaminants found in water sources ranging from heavy metals, arsenic and organic pollutants. Research efforts have grown in recent years to find sustainable methods for removing these contaminants from surface, ground, and wastewater. The use of nanotechnology for water purification has become a recent approach for improved performance and the targeting of specific contaminants. In this work, we have developed a novel multifunctional nano-carbon material derived from glycerol and demonstrated a facile, low cost, time-saving method of using it to coat polyurethane foam thus yielding a versatile adsorbent for water purification. The carbon nanoparticle coated polyurethane foam (CN-PUF) was found to be an effective adsorbent and capable of removing lead, cadmium, copper, chromium and methylene blue dye from solution. The CN-PUF material could be produced in large quantities using coating materials from renewable sources, simple coating methods, and a readily available and inexpensive foam material.

Synthesis of Derivatives of Phenazine-1-carboxylic Acid for Use in Antiviral Assays

Daniel Mends
Alex Atwood

Faculty Mentor(s):	Christopher Monceaux	Chemistry
	Justin Anderson	Biology
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Phenazine compounds are found as natural products that are predominately synthesized by pseudomonas bacteria. Preliminary assays have shown that exposure to the supernatant of pseudomonas bacteria causes an inhibitory effect on the La Crosse Virus(LCV). Direct We aim to synthesize phenazine derivatives—in particular those of phenazine-1-carboxylic acid—that will then be assayed will provide for direct assays to ascertain whether these derivatives are active against LCV or other viruses.

Chemistry Poster Session

Top-Down vs. Bottom-Up Formation Mechanism For Fullerenes and Endohedral Metallofullerenes

Hannah Bell
Angel Lambert

Faculty Mentor(s):	Tim Fuhrer	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

For the first twenty years after the discovery of fullerenes, a "bottom-up" mechanism of assembly, where fullerenes form by successive addition of C2 units, was generally accepted. Recent experimental and theoretical discoveries have led to questioning of this premise and the postulation of a "top-down" mechanism where fullerenes are thought to form from the folding up of graphene sheets and successive losses of C2 units. Herein we compare the predictions of these two mechanisms by investigating the thermodynamic stabilities of several empty cage fullerenes including C60, C70, and C76, and the hexanions of the Trimetallic Nitride Templated fullerene isomers of C80, C82, C84, C86, and C88.

Quantum Entanglement, the Key to Understanding the Secrets of the Universe

Mark Roper

Faculty Mentor(s):	Tim Fuhrer	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Quantum Entanglement is defined "when particles interact physically and then become separated, and the type of interaction is such that each resulting member of a pair is properly described by the same quantum mechanical description (state) (wavefunction), which is indefinite in terms of important factors such as position, momentum, spin, polarization, etc." Recent experiments have shown this controversial hypothesis to be reality and recent theoretical papers have demonstrated that this phenomenon may be the very key to understand the relationship between gravity and quantum mechanics. Our goal as a research group is to further the understanding of this phenomenon through both experimentation and theoretical work.

Determination of Malathion in Soil and Produce

Matthew Potter

Faculty Mentor(s):	Cindy Burkhardt	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Malathion is an organophosphate widely used as a pesticide, and is the most commonly used organophosphate pesticide in the United States. Gas chromatography-mass spectroscopy (GC-MS) was used to determine a detection limit of malathion based on EPA Method 8141B. A further study showed that by analyzing only certain mass charges by a selected ion monitoring (SIM) mode analysis, a lower detection limit was possible. Soil samples were obtained and treated with malathion following the standard protocol for treating soil with the pesticide. Additionally, lettuce was grown and treated various ways to detect possible malathion residues. The malathion was then extracted using an ultrasonic extraction technique and quantitatively analyzed using a GC-MS using bis(trimethylsilyl)-trifluoroacetamide as an internal standard. A percent recovery was determined for the soil extraction method. Additional testing included growing lettuce in soil treated with malathion to determine the amount of malathion that would be taken in by the plant during growth. A recovery method based off of EPA method 8141B was used to collect extract from the lettuce, and a percent recovery of malathion was found.

Chemistry Poster Session

Making it in Chemistry: The Design and Construction of a Low Cost Dynamic TensiometerContact Angle Analyzer

Anthony Smith

Faculty Mentor(s): Francis Webster Chemistry
Wednesday, April 20th Center for the Sciences Mainstreet Lobby 5:30 pm-7:00 pm

An understanding of the surface tension of liquids, how the surface tension can be altered, and the interaction of liquids with solid surfaces is industrially important today including use in the pharmaceutical, automotive, cosmetics, and paint industries among others. There many techniques to determine the liquid surface tension and the wettability of solid surfaces including the sessile drop, capillary rise, bubble pressure, pendant drop and Wilhelmy plate methods. Of these techniques, the Wilhelmy plate method is simplest method and gives very accurate and reproducible results. Its simplicity lies in the fact that only a vertical stage, thin glass plate and sensitive balance are needed. A thin plate is held above the liquid and raising the liquid to touch the hanging plate will register a force that can be related to the specific surface interactions involved. In this project, a dynamic contact angle analyzer was developed and built using off-the-self components to produce a high-quality instrument with characteristics similar to expensive commercially available instruments. The performance of the instrument was assessed for the determination of both surface tension and contact angles, and the specific design of the instrument will be reviewed including the design of the vertical stage and stirring system. The instrument was automated using the National Instruments USB-6008 for data collection and instrument control. Programming was done using LabView, and the advantages of a graphical programming language and program design will be reviewed. During the fall of 2015, the instrument was used in a physical chemistry laboratory course to measure the critical micelle concentration of the surfactant sodium dodecyl sulfate and the results will be discussed and compared to literature values.

Investigation of Dental Resins

Carissa Fitch

Faculty Mentor(s): Cindy Burkhardt Chemistry
Wednesday, April 20th Center for the Sciences Mainstreet Lobby 5:30 pm-7:00 pm

Light activated resin-based dental restorative materials have become increasingly popular since their initial appearance in 1950. General dentistry practices in the 1950s were primarily using dental amalgam. Dental resins are commonly polymerized using devices such as the light emitting diode (LED). The methods of polymerization for these resins are of importance because it is the residual monomers remaining from incomplete polymerization that are of concern. These monomers later leach out into the oral cavity and can have toxic effects. The resin fillings are known to leach between 14 and 22 separate potentially hazardous compounds, two of which are BISGMA (bisphenol A-glycidyl methacrylate) and TEGDMA (triethyleneglycol-dimethacrylate). The investigation of the residual BISGMA and TEGDMA monomer content in various resin filling materials was investigated using High Performance Liquid Chromatography (HPLC). The photo-activation efficiency of these resin fillings was also investigated using Differential Scanning Calorimetry (DSC).

Chemistry Poster Session

Forensic Science Investigation: HPLC Analysis of Hair Residues

Dakota Helmandollar

Faculty Mentor(s):	Cindy Burkhardt	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Forensic science studies of hair typically revolve around morphological characteristics. Few methods based on chemical analysis have been developed. Hair residue composition is theorized to be unique per individual depending on the day-to-day environment that the hair has been exposed to such as the type of hair products, air composition, work conditions, smoke, and also the person's diet. The goal of this research was to develop a method for forensic analysis of hair residues. A method for extracting and analyzing the residue was developed. High performance liquid chromatography (HPLC) was used for the actual analyses. Results will highlight "fingerprint" chromatograms similar to those used for accelerant analyses.

Effects of Gasoline that Contains Ethanol on Small Engine Gaskets

David Webb

Faculty Mentor(s):	Cindy Burkhardt	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Lately mechanics have experienced an increase in gasket damage while performing small engine repairs. Although difficult to prove, thoughts have centered on the damage being due to oil or gasoline getting and staying on the gasket surface during the winter months when the engine is not in use. This research was designed to examine one possible contribution to the problem. First, a method was developed to quantitate the amount of ethanol in gasoline using gas chromatography (GC) and standard additions. Gaskets were then soaked in solutions of gasoline that contained ethanol for various lengths of time. The solutions were again analyzed by GC and the gaskets were analyzed using differential scanning calorimetry (DSC). Results will be highlighted.

Analysis of Common Anions by HPLC and Non-Supressed Conductivity

Halle Edwards

Faculty Mentor(s):	Cindy Burkhardt	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Water is considered a "universal solvent" due to its ability to dissolve a vast number of solids, more than any other liquid. This makes it especially useful in most applications, but also makes it prone to contamination. Water easily picks up impurities from various sources in the environment such as industrial wastewater, run-off, sewage, and natural sources. The environmental testing industry works to analyze the quality of water both in the environment and for consumption and use. Historically, suppressed conductivity ion chromatography has been used for the sensitive and specific analysis of common anions. It is the most widely used and well known technique. However, it has its limitations. Because the demand for water analysis is sporadic in various markets, some laboratories cannot afford to dedicate a specific instrument for a single purpose, allowing for idle time. This research proposes an alternative method for anion analysis using High Performance Liquid Chromatography coupled with an ion chromatography column and conductivity detector. This new method allows for non suppressed conductivity which makes it possible to improve on detection limits established in previous methods. When coupled with a UV-Vis detector, this new method also allows for accurate quantitative analysis of nitrate and nitrite in the presence of high concentrations of chloride, a frequent issue with current methods. Also, the instrument would not need to be dedicated to a single purpose as a simple column change would allow it to become a dual purpose instrument. Overall, this new method would be a more effective and economical option for smaller laboratories in the environmental testing industry.

Chemistry Poster Session

Synthesis of Novel Magnetic Iron/Carbon Nano-composites for Lead Adsorption

James Cardenas

Faculty Mentor(s):	Francis Webster	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Water Pollution is considered a major concern throughout the world especially in third-world countries. Pollutants such as lead, cadmium, and arsenic represent but a few of the more harmful pollutants. This investigation focuses on the synthesis, characterization, and adsorbent properties of a novel magnetic iron-carbon nano-composite and its ability to remove lead through adsorption. Highly functionalized nano-particulate carbon was produced through the acid dehydration of glycerol. Co-precipitating Fe (II) and Fe (III) in the presence of a colloidal suspension of functionalized carbon using ammonium hydroxide formed the magnetic nano-composite. Composite samples were then analyzed using scanning electron microscopy (SEM), attenuated total reflectance infrared spectroscopy (ATR), and thermal gravimetric analysis (TGA). In this experiment, we investigated the adsorption properties of lead using the material with initial lead concentrations ranging from 0-75ppm and the residual lead was determined using inductively coupled plasma spectroscopy. Results indicated an adsorption capacity of over 100mg/gram and showed a pH dependence with desorption occurring at lower pH values.

Synthesis of 1,2-Disubstituted Styrenyl Oxides for use in Regioselective Nucleophilic Openings. A New Route to 2-Aminoalcohols.

Lauren Hines
Christine Tutwiler

Faculty Mentor(s):	Christopher Monceaux	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

Our objective is to demonstrate that 1,2-disubstituted styrenyl oxides can be opened regioselectively via intramolecular N-H activation of the epoxide to provide 2-aminoalcohols. This type of amino alcohol structural motif is found in therapeutics, chiral auxiliaries in organic synthesis, ligands, and natural products. Several pathways to this type of amino alcohol exist, but to our knowledge the regioselective opening of 1,2-disubstituted styrenyl oxides has not been utilized to synthesize 2-aminoalcohols. As a proof of concept, we also propose to demonstrate the stereospecificity of our proposed N-H activation by utilizing a trans-epoxide to furnish a derivative of the natural product ephedrine. We predict that utilizing the diasteromeric cis-epoxide will furnish a derivative of pseudoephedrine.

Analysis of E. coli Beta-Glucuronidase

Andrew Milauskas
Mckenzie Hunt

Faculty Mentor(s):	Kimberly Lane	Chemistry
Wednesday, April 20th	Center for the Sciences Mainstreet Lobby	5:30 pm-7:00 pm

The effects of E. coli beta-glucuronidase on the chemotherapy pro-drug CPT-11 can result in extremely harmful side effects. Once in the body, CPT-11 is metabolized into the active form of the drug, SN-38 (an inhibitor of topoisomerase I). The glucuronidation of SN-38 to SN-38G occurs in the liver so that the otherwise toxic drug can be marked for excretion. The bacterial beta-glucuronidase strips the glucuronide off of SN-38G and results in the drug's toxic effects. The interaction between beta-glucuronidase and SN-38G can be blocked by using the inhibitor Z-77. E. coli beta-glucuronidase contains a bacterial loop not found in the human form of the enzyme. Z-77 has been found to be selective for binding to the bacterial loop, therefore, not affecting the human form of the enzyme. To study the essential function of the bacterial loop of E. coli beta-glucuronidase, our laboratory is developing a variety of mutations targeting specific amino acids in this loop. Our work examines the wild-type E. coli beta-glucuronidase for comparison to future mutations with respect to the Z-77 inhibitor.

Health and Human Performance Poster Session I

HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness

Tonia Amos **Candice Banks** **Kasey Blevins** **Kaitlin Carr**
Davonte Christmas **Caitlin Clemons** **Zachariah Cole** **Dayna Covey**
Kevin Cox **Samm Feagin** **Laura Giesen** **Tyler Gregory**
Benjamin Helms **Isaac Idigo** **Brianna Johnson** **Asa McKee**
Alex Miles **Rebecca Miller** **Clarissa Morrill** **Emily Poff**
Malina Richardson **Hannah Shaffer** **Katlin Shoemaker** **Hannah Stowers**
Katie Toibin **Rachel Travis** **Sydney Walcott** **Leslie Wilcox**
Chelsea Williams **Eva Williams**
Faculty Mentor(s): Kathleen Poole Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

Access to adequate amounts of safe and nutritious food is essential to sustaining life and promoting health. Consuming unsafe food or water containing harmful bacteria, viruses, and parasites causes over 200 diseases ranging from diarrheal disease to cancer. Globally, an estimated 600 million people (1 in every 10 people world wide) become infected after consuming contaminated food or water and 420,000 die each year. Unsafe food creates a vicious cycle of disease and malnutrition, which disproportionately affects infants, young children, and the elderly. Students in Dr. Poole's International Health class will present posters on a variety of common foodborne illnesses that will include a definition of the disease, transmission, symptoms, treatment, prevention strategies, and recent outbreaks.

Gamekeeper's Thumb

Carolyn Clary
Faculty Mentor(s): Michael Moore Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

An 18-year-old high school student athlete sustained a Grade 3 sprain of the Ulnar Collateral Ligament (UCL) on the right thumb with an avulsion fracture of the proximal medial phalange of the athlete's dominant hand during a basketball game in Southwest Virginia. Upon examination by a primary care physician located at the site of the injury, severe bruising, intense pain as well as a positive Gamekeeper's thumb test, or extreme laxity, demonstrated the need for referral to a local orthopedist. This orthopedic physician's exam repeated the signs and symptoms found initially, as well as a positive X-Ray. The physician advised immediate surgery. The athlete demonstrated hesitation and ultimately opted to finish the remaining 2 months of the season. The physician then advised the athletic trainer, family and athlete of risks as well as the best possibilities to minimize further injury. A spica splint was given for wear at all times except during games and practices where tape would be used. Surgery ultimately followed the season where it was found that additional scar tissue had formed over that time. The orthopedic surgeon used an S incision as well as a pin through the joint. Physical therapy followed and the athlete made a full recovery with 100% range of motion as well as strength.

Health and Human Performance Poster Session I

Hepatitis C Virus (HCV) Screening: Why or Why Not?

Zac Cole

Faculty Mentor(s):	Pamela Frasier	Health and Human Performance
Wednesday, April 20th	Heth 014	3:00 pm-4:00 pm

The purpose of this exploratory study is to identify the reasons current IV-Drug Users want to be screened for Hepatitis C virus (HCV) while others do not. The significance of this study is its contribution to current research for inhibiting the spread of HCV. Recent research found behavioral factors as reasons IV-drug users engage in drug use, as well as characteristics of those individuals. Findings show similar evidence with IV-users screened for HIV/AIDS. A mixed-methods approach will be undertaken. The setting for this study is a recognized "drop-in center" providing HCV testing, prevention counseling, education, outreach and support services. Participants visiting drop-in center will compose the study sample for summer 2016 and be invited to complete a survey. Criteria for participants include: 1) IV-user; 2) 18 years of age or older; and 3) Reason for visit = testing for HCV. Epi Info 7 will employed for data collection and analysis of simple descriptive statistics. A content analysis will be conducted for opened-ended responses. We anticipate that IV-Drug users will want to be screened in order to determine HCV status. If positive, they will want to prevent the spread of HCV. The significance of this study is its contribution to health communications campaigns to inhibit HCV. Limitations of the study are the convenience sample, the brief time period for the study and one location. The researcher recommends that this study be carried out in other settings to validate information for tailoring messages for health communication campaigns.

Energy Expenditure In Power Wheelchair Soccer Athletes With Spinal Muscle Atrophy

Nicole Walsh

Faculty Mentor(s):	J.P. Barfield	Health and Human Performance
	Laura Newsome	Health and Human Performance
Wednesday, April 20th	Heth 014	3:00 pm-4:00 pm

This research is about the energy expenditure in power wheelchair soccer athletes with spinal muscle atrophy. Spinal muscle atrophy is a genetic disease in which the affects the motor neurons, and appears as muscle weakness and fatigue that is the same bilaterally (Montes, J. et. al. 2014). The purpose of the study was to examine the exercise response during power wheelchair soccer among players with SMA (i.e., percent change in VO2 from rest to play). Data were collected on 7 players with SMA in Fort Wayne, Indiana. In order to collect the data a portable VO2 monitor was strapped onto the player's chest, as well as a mask placed on their face to monitor the amount of oxygen being used. A scale called Rate of Perceived Exertion (RPE) was used to ask the athletes how hard they perceived that they were working. Data were collected on each participant for one half of the soccer game, preceded by 5 min of rest. The data on VO2 collected showed an average rise of 33% from rest to play, with the highest rise being 62% from rest to play. The data on RPE indicated that many players perceived working extremely hard (RPE = 17). Some of the athletes tested did not respond to the exercise, meaning their VO2 barely changed from rest to play. The research shows that most athletes with SMA using a power wheelchair are still able to get an aerobic workout, which could encourage non-traditional athletes to become more active.

Health and Human Performance Poster Session I

Salmonella

Clarissa Morrill
Kevin Cox
Laura Giesen

Faculty Mentor(s): Kathleen Poole Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

Out of the several food-borne illnesses known, salmonella, is a bacteria that makes people feel sick. Salmonella serotype Typhimurium and Salmonella serotype Enteritidis are the most common types of salmonella found in the United States. Outbreaks are usually associated with eggs, meat, and poultry but these bacteria can also contaminate fruits and vegetables. Foods that most likely contain salmonella are raw eggs, milk, and meats, and contaminated water. People that are infected with salmonella usually develop diarrhea, fever, and abdominal cramps 12-72 hours after the infection. Symptoms can last up to 4-7 days but many individuals will recover with out treatment. In some cases, diarrhea can be so severe that the patient must be hospitalized and put on antibiotics to prevent the infection from spreading from the intestines to the blood stream. Salmonella is more common in children and, rates show it is more common in the summertime.

Camplobacter

Hannah Shaffer
Tyler Gregory
Katlin Shoemaker

Faculty Mentor(s): Kathleen Poole Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

Campylobacter jejuni is the most common cause of bacterial foodborne illness in the United States. The food becomes contaminated when it comes in contact with animal feces. However even though the illness is common, the infections are usually isolated and wide spread outbreaks are rare. Symptoms usually occur 2 to 5 days after a person eats contaminated food, but may take up to 10 days to appear. The most common symptom of a Campylobacter infection is diarrhea, which is often bloody. Other typical symptoms include fever, headache, vomiting, and abdominal/ muscle pain. Prevention strategies include not leaving food out at room temperature for an extensive period of time, when cooking be sure food is fully cooked specifically meat products, wash fruits and vegetables before consuming, and also be sure to wash hands thoroughly after contact with animals, meats, diapers, or children. This particular infection usually resolves after about a week, although treatment from an antibiotic may shorten the course. Poultry contamination levels peak during the summer months, and this seasonal pattern is reflected in the number of reported Campylobacter infections. Active surveillance through FoodNet indicates that about 13 cases are diagnosed each year for each 100,000 persons in the population. Many more cases go undiagnosed or unreported, and campylo-bacteriosis is estimated to affect over 2.4 million persons every year.

Health and Human Performance Poster Session I

Escherichia coli

Courtney Pryde
Candice Banks
Caitlin Clemons

Faculty Mentor(s): Kathleen Poole Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

E. coli is a shortened term for Escherichia coli. E. coli is a bacteria that lives in your intestines and it can be either good or bad. E. coli can cause diarrhea and it is transmitted by contaminated water or food, or by contact with animals and people. Some symptoms of E. coli are stomach cramps, diarrhea, and vomiting. Symptoms usually lasts 5-7 days. To prevent getting E. Coli you should wash your hands thoroughly after using the bathroom, cook meats thoroughly, avoid raw dairy products, avoid swallowing water when swimming in water, and try to prevent cross contamination of food when you are preparing it. The only treatment for this infection is hydration, antibiotics can't be used. Some recent outbreaks of E. coli are Jack and the Green Sprouts, Inc. recalled all of their alfalfa and alfalfa onion sprout products. Another recent outbreak that gained a lot of coverage in the news was Chipotle Mexican Grill.

Listeria

Dayna Covey
Kasey Blevine
Asa McKee

Faculty Mentor(s): Kathleen Poole Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

Listeria is a serious foodborne infection that is usually caused by eating food contaminated with the bacterium Listeria monocytogenes. Listeria is transmitted through consuming contaminated food. Symptoms include: fever, muscle aches, and sometimes diarrhea or other gastrointestinal symptoms. Almost everyone who is diagnosed with listeriosis has "invasive" infection, in which the bacteria spread beyond the gastrointestinal tract. The symptoms vary with the infected person depending on age, immunocompromised, and pregnancy. You can prevent Listeria by rinsing, scrubbing, and drying all produce. Also keeping the kitchen environment clean, and cooking meat and poultry thoroughly while storing food safely. Listeria can only be treated with antibiotics. In 2016, a multistate outbreak of listeriosis occurred which was traced to packaged salads produced at the Dole Processing Facility in Springfield, OH. In 2015, a multistate outbreak of listeriosis was linked to soft cheeses distributed by Karoun Dairies, Inc. Another outbreak was linked to Blue Bell Creameries Ice Cream Products.

Health and Human Performance Poster Session I

Ascaris

Hannah Stowers **Becca Miller**
Leslie Wilcox **Eva Williams**

Faculty Mentor(s):	Kathleen Poole	Health and Human Performance
Wednesday, April 20th	Heth 014	3:00 pm-4:00 pm

An estimated 807-1,221 million people in the world are infected with Ascaris lunbricoides (also called Ascaris). Ascaris, hookworm, and whipworm are known as soil-transmitted helminths, which are parasitic worms. Ascaris lives in the intestines and the eggs are passed in the feces of the infected person. Ingesting eggs causes Ascaris. This can happen when hands or fingers that have contaminated dirt on them are put in the mouth or by consuming vegetables or fruits that have not been carefully cooked, washed or peeled. People infected with Ascaris often show no symptoms. If symptoms do occur they can be light and include abdominal discomfort. Heavy infections can cause intestinal blockage and impair growth in children. Other symptoms such as cough are due to migration of the worms through the body. Ascaris is treatable with medication prescribed by your health care provider. Some prevention treatments are to avoid ingesting soil that may be contaminated with human feces, including where human fecal matter ("night soil") or wastewater is used to fertilize crops. Wash your hands with soap and warm water before handling food. A recent outbreak was in Maine due to pig farming affecting 14 people from April 2010- March 2013.

Vibrio cholera

Rachel Travis **Zac Cole** **Brianna Johnson**

Faculty Mentor(s):	Kathleen Poole	Health and Human Performance
Wednesday, April 20th	Heth 014	3:00 pm-4:00 pm

Cholera is an acute bacterial disease characterized in its severe form by sudden onset, profuse, painless watery stools. This great loss of fluids is caused by the release of an entertoxin that affects the small intestines. Nausea and profuse vomiting occur upon early onset of the illness. If the person diagnosed is asymptomatic then they are able to transmit the infection. If untreated, this disease can become severe causing rapid dehydration, acidosis, circulatory collapse, Hypoglycemia (children), and renal failure which can lead to death. Cholera is the oldest and best understood epidemic disease. The incubation period can range from a few hours to five days (usually 2-3 days). There is a strong link of this disease to the consumption of unsafe water and food, poor hygiene, poor sanitation and crowded living conditions. Reservoirs of water contaminated by individuals who have cholera or from feces can contribute to an epidemic in a population. The areas where this disease are most prevalent are in slums, rural areas, and areas that have suffered a disaster (floods). Ensuring that water quality and prepared foods are safe, proper sanitation and waste disposal, and appropriate hygiene (hand-washing) are ways to prevent this disease from developing into an epidemic. Vaccinations and screenings are provided by the world health organization (WHO) as well. The most recent outbreak is in the Congo (2015). It is prevalent all over the world from Latin America, Haiti, Africa, Southeast Asia, and even in the U.S.

Giardia

Samm Feagin **Ben Helms** **Chelsea Williams**

Faculty Mentor(s):	Kathleen Poole	Health and Human Performance
Wednesday, April 20th	Heth 014	3:00 pm-4:00 pm

Giardia is a microscopic parasite that causes giardiasis, which is a diarrheal illness. The parasite is found found on the surface of soil, food, and water that has been contaminated by human or animal feces. Ingesting contaminated food, water, or soil transmits Giardia. Symptoms include diarrhea, gas, greasy stool that floats, abdominal cramps, vomiting, and dehydration. Prevention strategies include practicing good hygiene, avoiding foods and beverages that may be contaminated, preventing contact with contaminated feces during sex, and cleaning up after people and animals that may be infected. Several drugs may be used to treat Giardia. Infection rates have been known to go up in late summer. During 2006-2008 Giardiasis was twice as high in the United States.

Health and Human Performance Poster Session I

Norovirus

Emily Poff **Kaitlyn Carr**
Katie Toibin

Faculty Mentor(s): Kathleen Poole Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

Norovirus is the most common cause of gastroenteris, swelling of the stomach and/or intestines. It is also referred to as 'food poisoning' and is caused by a virus that is highly transmittable. The most common way norovirus is transmitted is through contaminated stool or vomit coming in contact with the mouth. This can be done through sharing food or drinks. The virus is carried largely through feces and can be present in stool from before the onset of symptoms up to 2 weeks after symptoms have disappeared. These symptoms include; diarrhea, upset stomach, vomiting, nausea, fever, headache, and body pains. These symptoms usually appear 12-48 hours after being infected. There is no vaccination for this virus, when following guidelines for prevention from the CDC, one should wash their frequently, wash and peel fruit and vegetables before consumption, fully cook seafood and other meats before consuming it, washing laundry thoroughly, and disinfect surfaces regularly. If contracted, this illness has no treatment currently. The best thing to do is treat the dehydration to prevent further complications. This means drinking lots of fluids and replenishing electrolytes. Outbreaks happen every year in the U.S. and tend to spike during the winter months. Every year norovirus causes between 19-21 million cases in the U.S. alone. The highest prevalence of this illness was in the winter of 2006 and 2007 when a pandemic strain emerged and caused almost 25,000 hospitalizations.

Taenia solium

Malina Richardson **Isaac Idigo** **Alex Miles** **Davonte Christmas**

Faculty Mentor(s): Kathleen Poole Health and Human Performance
Wednesday, April 20th Heth 014 3:00 pm-4:00 pm

The taenia solium is a pork tapeworm belonging to the taeniidoe family. They are found all over the world contracted by eating uncooked pork or beef. Usually it is found in a cow or pig with a bad sanitation community meaning that the farmer doesn't have the right conditions to meet the criteria to have a healthy farm. Symptoms of taenia solium can be extremely rare. Although, people may experience having digestive problems, stomach aches, loss of weight, as well as loss of appetite. Taeniasis is first contracted from pigs that eat plants having the eggs of these worms on them. Once the eggs are in the pig's intestine, the eggs hatch invading the intestine wall. These eggs further spread into the muscle of the pig turning into cystercerci. These cystercerci can live up to years after they have developed, causing it to be easy for humans to contract these worms. After humans eat infected pork, the worm travels its way to the intestine. In the next stage of the Taenias life cycle, these worms turn into tapeworms which then attach to the small intestine. From here the adult tapeworms produce about 1,000 – 2,000 proglottids, each proglottids produces about 50-000 – 100,000 eggs. These Proglottids eventually turn into gravids and detach from the tapeworm to course through your body. To get rid of cystcercosis you need to have surgery to extract the eggs. You cannot extract them through medication. The prophases of taenia solium is treated through medication. Depending on the doctor you can be prescribed to praziquantel or niclosamide. Ultimately the best way to prevent these infections is to either cook your pork or cow thoroughly in your own kitchen or do not eat pork or beef at all.

Health and Human Performance Poster Session I

Hepatitis A

Sydney Walcott
Tonia Amos
Asa McKee

Faculty Mentor(s):	Kathleen Poole	Health and Human Performance
Wednesday, April 20th	Heth 014	3:00 pm-4:00 pm

The hepatitis A virus (HAV), a picornavirus, is a disease that occurs around the world, which occurs in endemic and epidemic form and is transmitted primarily by person-to-person contact through the fecal-oral route. Symptoms include flu-like symptoms and yellowing of your skin and the whites of your eyes (jaundice), which then gradually clear without treatment. The hepatitis A vaccine can prevent infection with the virus. The hepatitis A vaccine is typically given in two doses — initial vaccination followed by a booster shot six months later. Hepatitis A occurs throughout the world. Other preventative measures include good hygiene measures such as washing hands frequently and thoroughly. If traveling to a country effected with Hepatitis A, wash fruit thoroughly and peel skin, drink bottled water only and avoid raw or undercooked meat. It is highly endemic in some areas, particularly Central and South America, Africa, the Middle East, Asia, and the Western Pacific. The most recent outbreak in the U.S. was in 2013 that came from Townsend Farms Organic Antioxidant Blend that effected 10 states and resulted in 71 hospitalizations.

Health and Human Performance Oral Presentations

Improving Quality of Life through a Ten Minute Exercise Course for Sedentary Employees

Brianna O'Hara
Dana Rodriguez

Faculty Mentor(s):	Kevin Ayers	Health and Human Performance
	Pamela Frasier	Health and Human Performance
	David Sallee	Health and Human Performance
Wednesday, April 20th	Heth 022	4:00 pm-4:20 pm

Introduction. This research examines whether a simple ten-minute exercise course, coupled with daily "fun-facts" offered as encouragement by co-workers, improves quality of life (QOL) outcomes specific to daily living among employees with sedentary lifestyles. Inactivity has been identified as a primary risk factor for multiple diseases, obesity, mental and emotional disorders, often leading to reduced QOL and lower work productivity. However, the Centers for Disease Control and Prevention report that exercising as little as ten minutes per day can result in improved QOL. Methods. A quasi-experimental pretest-posttest design measured change in sedentary workers' motivation to participate, participation levels, and perception of impact of exercise on their physical and mental health. The intervention, six-weeks of exercise for ten minutes at least three times per week, included ten exercise stations, each with written and video instruction for ease in use. Results. Results are expected to show improvements in daily activities for QOL among participants exercising ten minutes daily at least three times per week. Findings may also reveal that participation was higher among individuals participating in video production of "fun facts," and for those who self-reported higher motivation to exercise. Discussion. This research is important for both individuals, organizations, and society as a whole in order to demonstrate that relatively simple stations of movement or exercise offered in a controlled environment within the workplace and encouraged by co-workers can lead to improvement in overall QOL. Anything that can improve upon these conditions should be embraced.

Health and Human Performance Poster Session II

Muscles That Yields More Force in the Plank

Brittany Evans

Faculty Mentor(s): Auguste Barfield Health and Human Performance
Wednesday, April 20th Heth 014 4:30 pm-5:30 pm

Core strength is essential to functional training when working out. The core stabilizes and prepares you for other movements involving the upper body limbs and lower body limbs. The plank is an essential workout that strengthens your core and upper body at the same time. The purpose of this study was to determine which of the anterior deltoids, the triceps brachii, the rectus abdominis, and the pectoralis major yields more force when in a full arm plank position. Methods: The plank was assessed on 20 college students, 10 females and 10 males. Using an ElectroMyoGram (EMG) separate sensors were placed on individual muscles. For the females, EMG activity of the anterior deltoid, triceps brachii, and the rectus abdominis was assessed. For the males, EMG activity of the anterior deltoid and the pectoralis major was assessed. After the sensors were placed, each participant was asked to hold a thirty-second full arm plank while maintaining core stabilization. Average EMG across 30 sec and maximum EMG activity were recorded for each muscle. Results: Group responses are reported in Table 1. Conclusion: According to the results, it shows that for the females the muscle that yields the most force is the anterior deltoid, then the rectus abdominis, then the triceps brachii. For males the results show that the anterior deltoid yields more by a small amount. To conclude, if one was to incorporate a plank into a workout, one would be using more upper body strength to support the movement than core strength.

The effects of PNF Stretching on Vertical Jump: Literature Review

Riley Anderson **Aaron Kildea**
Alex Mendoza **Catherine English**

Faculty Mentor(s): David Sallee Health and Human Performance
Wednesday, April 20th Heth 014 4:30 pm-5:30 pm

Researches have investigated the role of stretching on injury reduction and performance. Studies indicate that little relationship exists between flexibility exercise and injury prevention. Additionally, pre event flexibility exercise has been reported to have detrimental effects on many aspects of performance. This researcher is focuses on the role of flexibility exercise, specifically PNF stretching exercises, on aspects of performance including power measurement such as vertical jump.

Health and Human Performance Poster Session II

How People With Cerebral Palsy Respond to Power Wheelchair Soccer

Sarah Smith
Amanda Joyce

Faculty Mentor(s):	J.P Barfield	Health and Human Performance
	Laura Newsome	Health and Human Performance
Wednesday, April 20th	Heth 014	4:30 pm-5:30 pm

Purpose: Cerebral palsy is a disease that is contracted during development or infancy. It can make movements difficult through weakness, muscle spasticity, and poor selective motor control making it difficult for a child to develop cardiorespiratory fitness. Physical activity is very important for individuals with a physical disability and has been shown to reduce the risk of secondary diseases that are associated with many disabilities and diseases. Power wheelchair soccer has many positive outcomes and benefits for those with a disability, but it's classification as physical activity is unknown because players use an electric wheelchair for participation. The purpose of this study was to examine the physical response to power wheelchair soccer among persons with cerebral palsy. Methods: VO2, RER, and METs were assessed on 14 athletes using objective measurements using a portable gas analyzer during 20 minutes of continuous play. Results: The average rest VO2 for the players with cerebral palsy was 5.69 while in game it was 5.62. The average rest RER was .84 while in game was .89. The average rest METs were 1.63 while in game METs were 1.6 Conclusion: Compared to spinal muscular atrophy, muscular dystrophy, and arthrogryposis, the players with cerebral palsy did not respond as notably when looking at VO2, RER, and METs.

Body Image and the Initiation of Sexual Intercourse in Adolescents

Amanda Joyce
Sarah Smith

Faculty Mentor(s):	David Sallee	Health and Human Performance
Wednesday, April 20th	Heth 014	4:30 pm-5:30 pm

Body image can affect every aspect of life for a teenaged female including social life, emotions, academic performance, and relationships. Most research is focused on how a positive body image effects sexual decision making. The purpose of the study is to see how a negative body image in teenaged females can affect the age of their first sexual encounter. The goal of the study is to investigate whether young ladies who have a negative body image tend to have sexual intercourse sooner. The information from this study can help parents and educators with their timing on when to talk to teenagers about sexual decision making. Data drawn from Youth Risk Behavior Surveys in Virginia indicates that there are associations between these behaviors. Students who reported initiating sexual intercourse during or before the age of 13 were 2.06 times more likely to report that they were trying to lose weight. 1.72 times more likely to report that they went without eating for 24 hours or more (also called fasting) to lose weight or to keep from gaining weight during the past 30 days. 3.31 times more likely to report taking diet pills or powders to lose weight during the past 30 days 4.36 times more likely to report that they vomited or used laxatives to lose weight during the past 30 days.

Health and Human Performance Poster Session II

The Down Phase of a Lunge

Briana Smith

Faculty Mentor(s): Auguste Barfield Health and Human Performance
Wednesday, April 20th Heth 014 4:30 pm-5:30 pm

Purpose: The lunge is a standard exercise movement that leads to an increase in muscle tissue, increase in hip flexibility, development in core strength, and an increase in functional movement/balance. Although the lunge is a standard movement, the primary muscle being strengthened while doing a lunge has been unclear. The purpose of this study was to understand which muscles are most active during the down phase of a lunge. Based on the results of this study and using the SAID principle to identify which muscle group is working the most, an athlete will be able to make their workout more specific. Methods: The lunge was tested on 18 college students both male and female over the course of two semesters. For this research study I assessed EMG activity by placing two sensors on the quadriceps, two on the hamstring, and one on the knee cap as the ground sensor. Participants performed one lunge and paused at the bottom to end the testing sequence. Results: The study shows that the quad muscles are contracting more when doing a lunge on the down phase. Although the hamstrings are contracting as well it is primarily the quads that are doing the work. Conclusion: The results indicate that if a coach is trying to strengthen both the hamstrings and the quads that he should choose another exercise because the hamstring isn't equally active. The results also suggest that during rehabilitation of the quads a lunge may cause further harm due to the amount of stress.

The Correlation of Knee Angles Upon Landing and ACL Injuries

Spencer Sheets
Nick Dufresne

Faculty Mentor(s): Auguste Barfield Health and Human Performance
Wednesday, April 20th Heth 014 4:30 pm-5:30 pm

Dufresne, N & Sheets, S. Purpose: Anterior Collateral Ligament (ACL) tears are very common among individuals with an active life style. Although athletes (e.g., baseball players and soccer players) are more susceptible to injuring or tearing their ACL, little research has examined whether or not the angle of the valgus force applied to the structure has an increased effect on athletes or non-athletes. Therefore, the purpose of this study was to compare the valgus angle of non-athletes, athletes, males, and females at the collegiate level after jumping off of a twenty-inch box. Method: The individuals that participated in our study jumped off of a twenty-inch box, as we filmed them with two iPad's. The participants included eleven males and six females, six of which were athletes while the others were non-athletes. We then played the videos in slow motion in order to determine the maximum impact point. Upon the finding of the maximum impact point, a line was drawn from the knee straight down to the ground, and another line was drawn from the knee to the lateral malleolus. The valgus angle of the knee was then measured with a goniometer. Results: 41% of the subjects had a valgus knee angle of zero when landing. The other 59% of the subjects had some form of valgus knee angles when landing. Only 33% of the athletes that were tested had a valgus knee angle of zero. 45% of the non-athletes that were tested had a valgus knee angle of zero. 50% of the females that were tested had a valgus knee angle of zero. 18% of the males that were tested had a valgus knee angle of zero. Conclusion: Results indicate that males are more likely than females to encounter an ACL injury due to a valgus force. The results also indicate that athletes are more likely to encounter an ACL injury rather than non-athletes. This conclusion is supported by the percentages above, the differences in daily activities between non-athletes and athletes and also the difference in genetic makeup between males and females.

Health and Human Performance Poster Session II

The Importance of Physical Activity in Spinal Cord Injuries – A Case Study

Robert Johnson

Faculty Mentor(s):	J.P. Barfield	Health and Human Performance
	Laura Newsome	Health and Human Performance
Wednesday, April 20th	Heth 014	4:30 pm-5:30 pm

Purpose: With the increasing number of new spinal cord injuries (SCI) in our society, the importance of physical activity levels and predictors need to be examined to help these patients to prevent secondary complications that could potentially lead to death. Although it is been well established that physical activity has the potential to promote health and enhance quality of life in persons without disabilities, large proportions of the population are physically inactive to the point that it negatively impacts their overall health status. By examining the oxygen consumption (VO2), and energy expenditure in power soccer athletes with SCIs this could provide information regarding the type and level of physical activity necessary for positive health benefits in individuals with SCI that is currently limited. Methods: VO2 , RER, RPE and METs were assessed on an athlete with SCI using objective measurements via a portable gas analyzer during free play, drills, and scrimmage. Results. The average VO2 over the three various activities was 4.83 mL/kg/min, and the average rating of perceived exertion (RPE) was 12.5, indicating somewhat hard effort. This case study participant had a constant RER value of 0.92. Conclusion: Though there is not a large increase in muscle movement during the scrimmage this athlete with SCI increased his VO2 and therefore will have some cardiovascular improvements.

Energy Expenditure in a Power Wheelchair Soccer Player with Cerebral Palsy

Taylor Hathaway
Megan Dodson

Faculty Mentor(s):	Auguste Barfield	Health and Human Performance
	Laura Newsome	Health and Human Performance
Wednesday, April 20th	Heth 014	4:30 pm-5:30 pm

Purpose: Cerebral palsy is a condition in which different parts of the brain are damaged during development. This condition can result in impaired body movements and decreased muscle control that can confine individuals to an electric wheelchair. Researchers are trying to determine the exercise capacity that cerebral palsy individuals can sustain before becoming fatigued. Therefore, the purpose of this study was to evaluate energy expenditure of a cerebral palsy power wheelchair soccer player during times of rest and scrimmage. Methods: Energy expenditure was determined with a Portable Metabolic Unit K4B2 on a 46 year old female with spastic cerebral palsy. The participant was assessed during rest and warm up for five minutes and during scrimmage for ten minutes. We recorded the participant's VO2 every 30 seconds during rest and scrimmage while asking for her RPE, on a scale of 6-20, after each play condition. The participant's data was analyzed to determine exercise intensity in METS. Results: A comparison was made between the cerebral palsy athlete and other players being tested. Our data presented with the cerebral palsy player using 1 MET during rest and 1.62 METS during the scrimmage while the other players expended 1.42 METS during rest and 2.29 METS during scrimmage. During scrimmage she stated that her RPE was a 14/15 which is considered vigorous activity. Conclusion: A MET VO2 of 1.62 was our player's average during the scrimmage. The Compendium Comparison of 1.62 is equivalent to a person eating and reading while sitting. This demonstrates a low energy expenditure and a high RPE most likely due to the added wheelchair and muscle contractions of the participant.

Health and Human Performance Poster Session II

Exploratory Study Examining Factors Involved in College Women's Intention to Parent

Emily Poff

Faculty Mentor(s):	Pam Frasier	Health and Human Performance
	Cecile Dietrich	Health and Human Performance
Wednesday, April 20th	Heth 014	4:30 pm-5:30 pm

Many millennials are opting out of having children altogether. (The World Bank). The question, then, is "What factors determine the young college woman's decision to have a child?" Previous findings highlight factors such as the economy, cultural norms, and the convenience and availability of birth control. But are there other factors worth considering? This study examined the character traits of "hardiness," and self-efficacy, in order to better understand young women's intentions. METHODS. The research setting was a midsize public university in the southeastern U.S. Of the 8,500 students about 56% are female, with average age 20. The study sample, millennials (i.e., women age 18-34 in 2015, Pew Research) enrolled in an upper-level Human Sexuality course, were administered an internet survey during the first week of spring semester 2016. The survey included basic demographics; one item on intention to have children; a self-report questionnaire, the Temperament and Character Inventory (TCI-R140) which identified seven basic dimensions of personality; and the Resilience Scale, measuring essential characteristics of resilience. The Statistical Package for the Social Sciences (SPSS) was used for statistical analysis. ANOVA examined differences in trait levels among women "intenders", "undecided," and "unintenders". RESULTS. Results are expected to show that "intenders" will report personality traits of high self-efficacy, and a higher level of "hardiness" than "undecided" or "unintenders". DISCUSSION. Limitations of the study include the small sample size, the convenience sample, and the lack of generalization to other universities with a more diverse undergraduate student population.

Early Onset of Adolescent Sexual Intercourse and its Assocation with Drug Use and Abuse

Megan Dodson
Taylor Hathaway

Faculty Mentor(s):	David Sallee	Health and Human Performance
Wednesday, April 20th	Heth 014	4:30 pm-5:30 pm

The decision to initiate sexual intercourse has significant implications for the mental and physical health of adolescents. How this decision impacts other decisions regarding risk behavior is of particular interest to the researchers. The purpose of this research is to investigate the relationship between self-reported responses regarding the age of initiation for sexual intercourse and its association with self-reported responses regarding drug use and abuse. Data drawn from Youth Risk Behavior Surveys in Virginia indicates that there are associations between these behaviors. Research from multiple studies over the last decade supports this relationship. Students that reported initiating intercourse on or before the age of 13 were 6.17 times more likely to self-report lifetime cocaine use, 6.76 times more likely to report 30 day cocaine use, and 9.0 times more likely to report heroin use. This data seems to indicate that a relationship exist between these factors.

Information Technology Oral Presentations

Vulnerabilities of Radio Frequencies in IoT

Jessica Astacio
Alejandro Figueroa

Faculty Mentor(s):	Chen-Chi Shing	Information Technology
	Maung Htay	Information Technology
Wednesday, April 20th	Heth 016	4:00 pm-4:20 pm

Despite current advancements in today's technologies, radio frequencies are still unprotected in IoT and continue to be an Achilles heel of technology. A simple telephonic radio frequency (RF) can be intercepted with the use of a baby monitor. Many don't seem to understand the risks involved regarding with radio frequencies. This paper will discuss the vulnerabilities of common everyday wireless devices due to radio frequencies. The biggest vulnerability radio frequencies possess is that they can be easily intercepted when devices transmit on the same frequency levels; the lowest frequencies are the most easily received. The Raspberry Pi is a device that can be used to intercept these transmissions. A few ways to protect against radio frequency attacks will be mentioned. Air-hopper is a malware program that uses radio frequencies and key logging to attack vulnerable devices. The goal of this paper is to shed light on the weaknesses of today's every day wireless devices and to open the minds to those who think lightly of the matter of information security.

Cloud Computing Demands Security Advancements

David Martin

Faculty Mentor(s):	Chen-Chi Shing	Information Technology
Wednesday, April 20th	Heth 016	4:20 pm-4:40 pm

This paper will serve to explain how Cloud Computing will increase the rate at which new security measures will be required. Cloud Computing is a new technology, and is advancing at a rapid pace. Its advancement is changing cyber security and exposing the weakest links within current security. Through careful observation, this study of Cloud Computing services and security issues will explain why the malicious applications provided by Cloud Computing services are of great importance. The conclusion is attained by showing how quickly Cloud Computing resources can eliminate many current security measures with purely brute force methods. The careful piecing together of many studies and their results, as well as the logical assessment of ideas, all led to the conclusion that cyber security will require new, innovative security technology and increased Government investment in the future.

Interdisciplinary Oral Presentations

Using Evidence-Based Practices to Improve Batterer Intervention Programs: A Report From Student Field Research Experience

Hayleigh Bostic
Jennifer Hurley
Anne Brinkley
John Burke
Jenna McClintock
Parker Stinnett

Faculty Mentor(s):	Shelly Wagers	Criminal Justice
	Margaret Pate	Criminal Justice
Wednesday, April 20th	Heth 016	5:00 pm-5:20 pm

The current Virginia State Standards in place for Batterer Intervention Programs (BIPs) are somewhat outdated and need to incorporate new research surrounding BIPs to be more effective. The purpose of this study was to review the literature on the best practices of current BIPs and compare the state standards of other states to Virginia. Through comparison of the literature and the current practices, this project focused on using evidence-based practices to update and enhance the current Virginia state standards on BIPs. The findings and suggestions were presented to the Virginia Batterer Intervention Program Certification Board (BIPCB) and current providers in December 2015. This presentation will focus on the findings from this project along with the results from a survey taken by current Virginia BIP practitioners. We will also review current evidence-based practices for facilitators of BIPs and how the standards from other states compare to Virginia standards in this specific area. In addition, we will discuss the challenges and benefits of working on a real-world problem and active research from a student's perspective.

Dangerous Religions: An Examination of Scientology

Johan Coon

Faculty Mentor(s):	Susan Kwilecki	Philosophy and Religious Studies
Wednesday, April 20th	Heth 016	5:20 pm-5:40 pm

Since the academic study of religion first emerged, scholars have examined the destructive impact that religion can have on its faithful members as well as other members of society. One term that many people associate with potentially dangerous religious organizations is "cult." Defining the term "cult" can prove to be a challenging task because it is difficult to find common ground between two distinct perspectives: First are those who inherently give "cult" a strong negative connotation and may have intent to vilify the organization. The second are their counterparts, whom they call "cult apologists." They inherited this title because of their desire to set aside any and all potential bias in the study of religion, which in this case is perceived as detrimental because they may overlook the harmful elements of religious zeal. The goal of this article is not necessarily to pick which one of these viewpoints is more correct than the other but specifically to examine several aspects of a particularly infamous cult, Scientology. These include: the history of the founder of Scientology, L. Ron Hubbard, how the core beliefs based in philosophy and science emerged and developed under him, the advantages Scientologists claim to acquire through their practices, the reports of ex-members that reveal the possible threats of this infamous cult, and a brief example of my opinion on a hypothetical dilemma.

Interdisciplinary Oral Presentations

Sub-concussive Impacts Can Alter Multiple System Function

Cameron Holshouser

Faculty Mentor(s):	Brent Harper	Physical Therapy
Wednesday, April 20th	Heth 016	5:40 pm-6:00 pm

Unlike direct impact concussions, indirect sub-concussive impacts are the result of rapid deceleration/acceleration of internal forces, similar to whiplash. These sub-concussive blows can be cumulative and the effects of these impacts do not result in the standard concussive signs and symptoms. Due to this, many sub-concussive impacts go unnoticed and the damage may be predicative to injury. Sub-concussive symptoms have been thought to overload the sensory information to the brain which the body receives from three main systems: visual, vestibular and somatosensory. These systems can be tested and assessed to identify impairments. Athletes can be assessed by using tests including: eye movements, balance testing (i.e. BESS), and/or more functional movement tests (i.e. FMS, Y-Balance tests) to identify deficits in non-standard concussive signs/symptoms. The function of these systems may be normalized through certain exercises and movements that are easy to perform. It is theorized that a general general warm-up protocol, specifically designed to promote symmetrical whole body movement patterns and to normalize multi-system integration between the ocular, vestibular, and somatic structures, may decrease non-contact musculoskeletal injury incidence and may make the athlete less susceptible to suffer a multi-system sensory overload. The purpose of this study is to improve deficits in these systems by administering exercises and movements to normalize multi-system function which may decrease injury incidence rates and prevent future injury in musculoskeletal injuries and indirect concussion. We expect to identify deficiencies in visual, vestibular, and/or somatosensory systems in individuals exposed to cumulative sub-concussive forces not diagnosed with a concussion. We expect that the movement protocol may normalize afferent sensory information to these multiple systems which may prevent and/or make the athlete less susceptible to suffer a musculoskeletal injury and/or an indirect concussive events.

Arctic Geophysics Oral Presentations

Discoveries at the Top of the World—an Overview

Jake Clary **Hans Voll**

Faculty Mentor(s): Rhett Herman Physics
Wednesday, April 20th Center for the Sciences M073 6:30 pm-6:50 pm

Sea ice is the "canary in the coal mine" for the energy balance of our planet. We will discuss the thermal properties of arctic sea ice and the reason that we were studying this part of our planet.

How to Get More Out of Your Sled

Jamal Bowman **Katie Mankowski** **Ross Robertson**

Faculty Mentor(s): Rhett Herman Physics
Wednesday, April 20th Center for the Sciences M073 6:50 pm-7:10 pm

We will discuss the microclimate sleds that were invented and constructed at Radford University for the specific purpose of studying the thermal characteristics of arctic sea ice.

Meet Ohmy

Katie Mankowski **Nolan McGrady** **Nicholas Schrecongost**
Abdullah Zulfiqar

Faculty Mentor(s): Rhett Herman Physics
Wednesday, April 20th Center for the Sciences M073 7:10 pm-7:30 pm

The OhmMapper is a device that has the unique ability to generate an image of the sea ice through readings obtained at the surface. This image is based on the very different electrical properties of the ice and the underlying seawater. We will discuss how these properties are used by the OhmMapper to generate these images.

Ground Penetrating Radar—What Lies Beneath

Jordan Eagle **Logan Fisher**

Faculty Mentor(s): Rhett Herman Physics
Wednesday, April 20th Center for the Sciences M073 7:30 pm-7:50 pm

A ground penetrating radar unit was used to surprising success on the sea ice. One of the antenna frequencies was able to determine both the depth to the bottom of the ice as well as the differences in composition of the ice at different depths. We will also discuss a difference in the signal that we found when venturing far out onto the ice, a difference that may indicate horizontal differences in the ice.

Drilling for Polar Bears

Sam Mogen **Rudy Soltesz**

Faculty Mentor(s): Rhett Herman Physics
Wednesday, April 20th Center for the Sciences M073 7:50 pm-8:10 pm

In order to validate the modeled resistivity data we had to drill through the ice to get the actual ice thickness. The OhmMapper resistivity software can be manipulated to make the ice seem either thicker or thinner, and thus the "ground truth" of the ice drill is necessary to fix the parameters of the resistivity software. The question to be answered is whether the OhmMapper resistivity software gives an accurate picture of the sea ice.

What we Learned at the (Arctic) Beach

Sam Mogen **Hans Voll**

Faculty Mentor(s): Rhett Herman Physics
Wednesday, April 20th Center for the Sciences M073 8:10 pm-8:30 pm

We have a great deal of data to process and discuss. These data have led us to many conclusions that we will discuss. In the end the scientific knowledge we have acquired will contribute to the greater knowledge of our planet's energy balance.

Thursday, April 21st

Commodities and History Oral Presentations II
Heth 022 **12:30 pm-3:00 pm**

Psychology Poster Session I
Heth 014 **3:00 pm-4:00 pm**

Psychology Oral Presentations
Heth 022 **4:00 pm-5:00 pm**

Psychology Poster Session II
Heth 014 **5:00 pm-6:00 pm**

Interdisciplinary Oral Presentations
Heth 022 **5:00 pm-6:00 pm**

Scholar Citizen Showcases
Heth 043 **2:40 pm-5:00 pm**

Accelerated Research Opportunities Symposium
Heth 043 **5:45 pm-7:30 pm**

Monday, April 25th and Tuesday, April 26th

Student Choreography Showcase
Peters Hall B112 **7:30 pm**

Commodities and History Oral Presentations II

The New York Fur Trade

Sarah Hensley

Faculty Mentor(s): Brock Cutler History
Thursday, April 21st Heth 022 12:30 pm-12:45 pm

The fur trade that spanned many years in the colony of New York between the Indigenous Americans and the colonial settlers served as one of the first economic ventures in the New World. It introduced the tribes to European goods, including guns and alcohol, on a more grand level than ever before. The trade caused both positive and negative effects on the already strained relationship between the Indigenous Americans and the colonists. This strain affected not only the tribes, but also the colony itself. Fur trading went beyond New York, however. It was a web of fur trappers, colonial and London merchants, sailors shipping goods from the trade to various locations around the world, and others. Understanding the complex commodity chain created from the fur trade gives a more holistic worldview during this period in time.

ISIS: Islamism in the 21st Century

Chris Northrop

Faculty Mentor(s): Brock Cutler History
Thursday, April 21st Heth 022 12:45 pm-1:00 pm

The purpose of this project is to show what ISIS really represents in the form of Islam. Over the past few years, ISIS has caused the world over to scrutinize Islam and its adherents, to the point where it has become a slur towards Muslims to openly worship, especially in the West. My goal is to show what ISIS really represents, and to end these false ideas about Islam. It should be common knowledge that all Muslims do not support ISIS or extremism, and this project is at least a good start to disproving the ISIS cause.

The Spread of Beer: How the Transportation Revolution Turned Beer into a National Commodity

Andrew Spitzer

Faculty Mentor(s): Brock Cutler History
Thursday, April 21st Heth 022 1:00 pm-1:15 pm

After prohibition, alcohol came back with force that most people cold not have expected. After more than a decade of alcohol being outlawed, anyone who knew how to brew seemed to open their own brewery. What made it possible for beer, which was only consumed in local saloons, with local brewers, to be consumed nationwide. How did it become possible for you to buy a beer in the supermarket hundreds of miles away from where it had been created. August Busch of the Anheuser-Busch Company, was the man who spearheaded the movement from regional drink to national drink. He was behind the advancement of refrigerated transportation, which allowed him to ship be further away without the taste being compromised. What drove him to make these changes? Why did the average consumption of alcohol in the 1940s go from 2.2 gallons to almost 21 gallons? How did the development of transportation change how Anheuser-Busch made and distributed their alcohol? What impact did these factors have on demand of their beer throughout America? I believe that the transportation revolution allowed Anheuser-Busch to reach a much wider market, much quicker than they had been able to at any time before. This caused a huge spike in demand, increasing production and turning beer into the national commodity we see today.

Commodities and History Oral Presentations II

You Can Rum but You Can't Hide

Nicholas Hutchinson

Faculty Mentor(s):	Brock Cutler	History
Thursday, April 21st	Heth 022	1:15 pm-1:30 pm

Rum played an important part in the everyday lives of American colonists before the rise of whiskey during and after the revolution. It was New England's largest and most prosperous industry and Rhode Island rum replaced gold as a currency in Europe for a time. It replaced brandy as the normal daily ration of booze for seamen in the Royal Navy. It not only profoundly affected the lives of American colonists as well as British naval men, but also slaves in the Caribbean who harvested the sugar cane that was to be refined for the distillation of rum. The purpose of this project is to look into how rum affected and changed the course of history for the American colonists from its humble beginnings in the Caribbean in the 17th century, to its prosperous industry through the 18th century. I will examine the social and economic implications due to the rum trade, as well as the process of making rum and how it grew to be such a large commodity, and eventually how it faded out with the advent of whiskey.

Herring and Power: The Commodity Chain of Herring

Chris Northrop

Faculty Mentor(s):	Brock Cutler	History
Thursday, April 21st	Heth 022	1:30 pm-1:45 pm

Herring has been a very important aspect of the European diet since the early Medieval Period. Since Catholics cannot eat meat 100 days out of the year, herring became the substitute for meat on those days. As a result, whoever controlled the herring trade, primarily in the Baltic, had a major source of power and influence in Europe. This project will show how the commodity chain of the herring fish in the Baltic Sea during the Medieval Period, affected the grow of economic power, as well as influence, in Europe. Main areas of focus will be major trading groups such as the Hanseatic League, and religious institutions such as the Catholic Church.

The Impacts of the CITES Trade Ban on Ivory as a Commodity

Austin Weaver

Faculty Mentor(s):	Brock Cutler	History
Thursday, April 21st	Heth 022	2:00 pm-2:15 pm

The topic my presentation will emphasize is the cause and effect of ivory's ban in 1989 as a commodity. Much of its focus will be on the reasons why ivory's demand in the previous decades led to its prohibition. I will draw ivory's connections from the decline in elephant populations in Africa to its role in the daily life of the Western World. Because 1989 is the defining year of ivory's ban, I will deal with the role of CITES due to its dominant role in banning the commodity. The effects of the ban that I will emphasize include the opposition and support from various countries and groups due to ivory playing a significant role in their economies. Furthermore, I will go in depth with the lasting impact of its ban on poaching, usage as a commodity, and its sharp rise in price.

Commodities and History Oral Presentations II

20th Century Russian Steel Manufacturing and how it has Effected Eastern Europe until Present Day

Samuel Waleska

Faculty Mentor(s):	Brock Cutler	History
Thursday, April 21st	Heth 022	2:15 pm-2:30 pm

The research that is being conducted is to determine the steel manufacturing capability of Russia in the 20th Century. The goal of the research is to determine the impact that Russian steel has had and currently has on Eastern Europe. Areas that will be looked at will be the manufacture of steel and its uses in automobiles, aircraft, military industrial complex, and consumer products. Other questions that will be asked will be how does the fall of the Soviet Union affect Russian steel as well as the introduction of other materials such as aluminum in products such as cars. Methods of research will include primary sources such as memoirs from workers who helped build up steel manufacturing in Russia. Other possible sources for possible impacts would include economic journals, academic journals, and any "Steel" journals if they exist.

The Impact of the North American Tobacco Trade upon the Global Economy: 1500-1900.

Andrew Whelan

Faculty Mentor(s):	Brock Cutler	History
Thursday, April 21st	Heth 022	2:30 pm-2:45 pm

This research paper will encompass an in depth examination into the history of the North American tobacco trade. Beginning with a background on traditional tobacco usages by native cultures, this paper provides a chronological and riveting portrayal of tobacco's journey from humble beginnings to massive globalized production. By tracking the market trends from their origin through a time period just after the end of the Civil War this paper will expose the effects that the changing forces of labor had upon the industry as a whole -- specifically the impact that the introduction of slavery and the emancipation of enslaved peoples had. This paper will heavily examine tobacco's impact upon global markets and the global economy. The industrial processes involved in tobacco manufacturing have evolved over the years and had significant impact upon the growth of the industry, a theme that continually reoccurs throughout the paper. With the progression of the worlds industrial knowledge also came advances in the process of shipping and distributing products on a global scale, at which tobacco was the forefront. This paper will utilize primarily primary sources relative to the time period in an effort to more vividly portray the progression, impact, and displacement of power that the North American tobacco industry had upon the world.

American Silver and the Spanish

Richard Culbreth

Faculty Mentor(s):	Brock Cutler	History
Thursday, April 21st	Heth 022	2:45 pm-3:00 pm

Europeans making contact with the Americas at the tail end of the fifteenth century, most notably the Spanish and in particular Christopher Columbus, changed the course of world history forever. While they originally sought a route to Asia, what kept them coming back was the hope of obtaining immense wealth. This essay will focus on the silver which was obtained in the Americas by the Spanish in the early sixteenth century. The process of producing the silver, its journey out of the Americas across the Atlantic, and its dispersal across Europe and Asia will be examined. My argument will be that the silver which the Spanish obtained, and how it was utilized, are of great importance in world history. By tracking the flow of the silver mined in the Americas as it traversed the globe, information will be revealed which helps us to have a better understanding of globalization. The story of this precious metal in the sixteenth century reveals the interaction amongst Europeans, Africans, Americans, and Asians. It shows us how people saw each other in these time periods, and what it is that they valued, thus giving us a view of human nature as it appeared in the early sixteenth century which can of course help us to better understand ourselves today.

Psychology Poster Session I

Does the Combination of Caffeine and Alcohol Alter the Effects of Anxiety and Activity?

Lauren Dawson
Alexis Ward
Katy Bridges
Halyn Archer
Kendra Stansak

Faculty Mentor(s): Pamela Jackson Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

Thirty-four Long-Evans rats were chronically exposed to combinations of caffeine and alcohol to observe the effects of the drugs on anxiety and locomotion in animals. Rats were split into four conditions; a control group (Ensure), alcohol mixed with Ensure, caffeine mixed with Ensure, and alcohol and caffeine mixed with the Ensure. Daily drink consumption was recorded and after sixteen days of exposure to the drugs, testing commenced. An Open-field Avoidance task (passive avoidance) was used to measure the anxiety levels and locomotion of the rats. Rats were less anxious if they produced fewer feces, and if they spent more time in the center of the apparatus as opposed to staying along the edge. Data analysis is ongoing; we are expecting to find that the rats in the alcohol condition would be less anxious, but move around less than other conditions. Rats in the caffeine condition are expected to be more anxious and move around more than the other conditions. Rats in the control condition and rats in the alcohol plus caffeine condition should have similar results in movement and anxiety, producing similar anxiety and locomotion levels, because the caffeine is expected to offset the effects of the alcohol. This research is important because it could aid the youth of America, who regularly combine caffeine and alcohol, in understanding the potential effects that the combination could have on their anxiety, memory, and/or locomotion.

The Weight of the World on my Shoulders: The Relationships Among Anxiety, Depression, and Stress in College Students

Jessica Rivers
Douglas Buchanan

Faculty Mentor(s): Adrienne Means-Christensen Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

Research suggests that approximately 16% of college students have depressive or anxiety disorders (Eisenberg et al., 2007). These disorders are correlated with stress (Wiegner et al., 2015), which has a negative effect on physical health (Kiecolt-Glaser et al., 2002). To study these relationships within a college student population, college students in the present study (N=293) completed questionnaires pertaining to anxiety, depression, and stress. As hypothesized, anxiety (r=.59) and depression (r=.54) were correlated with stress and with each other (r=.63). A series of t-tests showed that depressed students were experiencing more anxiety (t=7.43) and stress (t=6.85) compared to non-depressed students. Compared to males, females reported more depression (t=2.84), anxiety (t=3.20) and stress (t=5.48). There were no interactions between gender and the relationships between stress and mood. This research strengthens previous research concerning the relationships between anxiety, depression, and stress and provides additional insight about the associations among these variables in college students.

Psychology Poster Session I

Let's Talk About Sex: Looking at Differences in Cognitive Dissonance Between Introverted and Extroverted Individuals

Amanda Dixon
Catheryn Cope
Passion Williams

Faculty Mentor(s): Jeff Aspelmeier Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

The presented study investigated whether individual differences in personality (i.e., introversion vs. extroversion) moderates the influence of level of effort required to enter a group (high vs. low effort) on group liking reported. In an online study, approximately 100 undergraduates completed the 50 item International Personality Item Pool inventory NEO-PI-R Domain (Costa & McCrae, 1992). Participants were then randomly assigned to high and low effort conditions. In the high effort condition, participants were asked to generate 20 sexually explicit words. In the low effort condition, participants were asked to generate 5 biological/scientific terms related to reproduction. After the word generation task, participants were given simulated conversation about the reproductive behaviors of turtles that presumably too place through in an online chat group. The conversation was intentionally written to be boring and confusing. Group liking was measured by asking a series of questions about how well participants enjoyed the group semantic differential scales. It was expected that participants who were more introverted and went through higher effort would report higher levels of group liking than those participants who were more introverted and went through lower effort. It was also expected that participants who were more extroverted and went through higher effort would report similar lower levels of group liking as those participants who were more extroverted and went through lower effort.

Does Caffeine Improve Learning and Memory while Drinking Alcohol?

April Knutsen
Jesus Martinez
Erin Long
Carley Keer
Kendra Stansak

Faculty Mentor(s): Pamela Jackson Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

Alcohol and caffeine are two popular drugs frequently consumed and abused by young adults, and are often associated with impairments in learning, memory, and motor functions. The present research explored the effects of self-administration of alcohol and caffeine, alone and in combination, on an avoidance learning task in rats. Thirty-four Long-Evans adult male rats were semi randomly assigned to four different groups: control, caffeine, alcohol, or a mixture of caffeine and alcohol. Caffeine exposure of 3% per 1000 mL was maintained throughout the study, and alcohol exposure was gradually increased to 8% per volume by test day. Avoidance task training was given for 5 minutes in an open field apparatus using aversive light and sound stimuli. Data analysis is ongoing; subjects in the control group as well as in the caffeine and alcohol combination group are expected to be moderately active overall and show greater learning retention on test day. Subjects exposed to caffeine alone are expected to be very active overall and to avoid the aversive corner. Subjects in the alcohol alone condition are predicted to show less locomotor activity during training and testing, and will not learn to avoid the aversive corner as well as other conditions.

Psychology Poster Session I

Self-Regulation in Dismissive-Attachment

Martha Epperly
Bryan Shores
Cassondra Chadwell

Faculty Mentor(s): Jeffery Aspelmeier Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

The present study investigates whether people with certain attachment styles rely on self-regulatory resources to manage their thoughts and feelings about relationships (Muraven, Tice, & Baumiester, 1989; Kirkpatric, 2005). Previous research demonstrates that individuals, who use a dismissive attachment style, suppress their access to negative childhood memories involving emotional experiences (Kohn, Rholes, & Schmeichel, 2015). The present study assesses whether the depletion of self-regulatory resources increases access to childhood memories involving negative emotional experiences in participants who use dismissive attachment. In a mixed—experimental/quasi-experimental—design, approximately 250 undergraduates completed measures of adult romantic attachment (Bartholomew & Horrowitz, 1991; Fralley, Waller, & Brennan, 2000; Brennan, Clark, & Shaver, 1998) and were randomly assigned to one of three writing conditions. Writing condition number one activates the attachment system. The second writing condition depletes self-regulatory resources. The third writing condition serves as a control. A factorial ANOVA tested the hypothesis that individuals who demonstrate dismissive attachment use self-regulatory resources as a mechanism to maintain a deactivating strategy. Researchers expected that dismissive individuals in the attachment condition, compared to those in the control condition, will demonstrate faster recall of negative emotional experiences. In contrast, researchers expect preoccupied participants to recall negative emotions faster than positive emotions across all conditions, based on the hyperactivating attachment strategy they are though to use. When comparing access to negative emotions by both dismissive and preoccupied participants, researchers expect dismissive individuals show the same tendencies regarding negative emotional memories, but only upon depletion of self-regulatory resources.

Burnout as a Mediator of the Relationship between Resiliency and Intention to Quit.

Brittany Huffer
Kamille Harris

Faculty Mentor(s): Nicole Petersen Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

The current study investigated the relationship between Resiliency, Burnout, and Intention to Quit. Specifically, this study was conducted to investigate whether Burnout served as a mediator of the relationship between Resiliency and Intention to Quit. In order to examine this relationship, a snowball sample of 160 working adults employed in various occupations were surveyed using Qualtrics. It is expected that Individuals who are more resilient are less likely to want to quit because they will be less likely to burnout: Resiliency will be related to Intention to Quit and Burnout will mediate that relationship. Implications of these findings, directions for future research, and study limitations are discussed.

Psychology Poster Session I

Does Caffeine Increase Consumption of Alcohol?

Deborah Goodnow
Javier Waase
Jennifer Henderson
Christopher Rock
Kendra Stansak

Faculty Mentor(s):	Pamela Jackson	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

Rats tend to self-regulate and limit their consumption when allowed free choice to alcohol. However, this natural response may be altered by the presence of caffeine in that it may cause the rats to drink more alcohol (Kunin et al., 2000). The current study looks at the chronic drinking pattern of 34 male Long-Evans rats in four separate groups, these include: the control group, a caffeine group, an alcohol group, and a combination of caffeine and alcohol. Each rat was given 60-70 mL of Ensure daily as either the control or as the vehicle for their drug(s). The caffeine groups consistently received .03% of caffeine in their Ensure. However, the rats receiving alcohol began at 3% for three days, moved to 6% for the next three days, and then on to 10%. After five days at 10% the researchers dropped it down to 8% alcohol because there was a significant drop in drinking in the alcohol conditions. Data collection is underway but it is predicted that the consumption of alcohol will be much lower in the 10% condition. We also hypothesize that both of the conditions containing alcohol will have drank less than the two groups that did not receive any alcohol, but may gain more weight than their counterparts. However, the addition of caffeine to the combination group is expected to encourage those rats to drink more than the alcohol only condition.

The Effect of Rape Myth Acceptance on Gender Composition in the Judgement of Rape Scenarios

Katie Rexrode
Samantha Lewis
Sarah Dennis

Faculty Mentor(s):	Jeff Aspelmeier	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

This study examined whether the perpetrator to victim gender composition presented in a rape scenario influenced whether a participant viewed the situation as rape or not. It also studied whether the participant's Rape Myth Acceptance (RMA) level moderated judgments about a rape scenario. Participants' RMA levels were evaluated using the Illinois Rape Myth Acceptance Scale (McMahon & Farmer, 2011), and the results for the judgments of the rape scenarios were scored using a numerical rating scale, where 1 represented definitely not rape and 7 represented definitely rape. Results were collected from 100 students at Radford University. Among participants with low RMA it was expected that in situations involving Male/Female, Female/Male, and Female/Female scenarios, participants are going to be more likely to say that it is rape in those situations than when they read the Male/Male scenario. Among participants with high RMA it is expected that in situations involving Male/Male scenarios, participants are going to be more likely to consider it clearly rape, and less likely to blame the victim, compared to all other scenarios.

Psychology Poster Session I

Do You Trust Your Instincts

Monica Swann
Oliver Benitez
Jessica Davis

Faculty Mentor(s):	Jeffery Aspelmeier	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

The present study investigated whether differences in perceptions about both attractive and unattractive females were moderated by accuracy motives. Participants consisted of approximately 100 Radford University students, at least 17 years of age, who were enrolled in a Psychology course. Participants were shown photos of attractive and unattractive women, and then were asked to rate how likely the target in each picture was to possess positive characteristics such as leadership, intelligence, happiness, and success. To test whether accuracy motives moderated the effects of attractiveness stereotypes, participants were given one of two primes meant to establish either high or low accuracy motives. The experimental group (high accuracy motives), participants were told that they would interact with the target in the photo in the near future on a high value mutually dependent task (e.g., a television game show). The control group (low accuracy motives), were told that they would potentially interact with the target in the photo on a casual/non-dependent task. In the control condition, it was expected that participants would attribute positive traits to the attractive female, compared to the unattractive female. In the high accuracy motive condition, rating of characteristics were not expected to differ across the high and low attractiveness conditions.

Booty Call or Bae: Does Openness to Experience Moderate Pluralistic Ignorance about Hook-ups

Bianca Contreras
Rebecca Aldrich
Christine Surface

Faculty Mentor(s):	Jeff Aspelmeier	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

Previous research has investigated the Big Five Personality traits—such as Extraversion and Conscientiousness—and whether they predict sexual behaviors such as hooking-up. However little research has been conducted on the trait of Openness to Experience (Gute & Eshbaugh, 2008) and the role that it may play in the pluralistic ignorance effect associated with hook-ups. With respect to hook-up attitudes, pluralistic ignorance occurs when a group of respondents all indicate that their peers are more comfortable with hook-ups than they themselves are, which represents a misperception of the social norm that occurs at the group level. Approximately 100 students attending Radford University were recruited through the SONA participation system. Participants were asked to anonymously complete International Personality Item Pool inventory (Costa & McCrae, 1992), report how comfortable they are with hook-ups, and report how comfortable they think their peers are with hook-ups. A 2 (self-reported comfort vs. perceptions of others' comfort: repeated measures variable) x 2 (High vs. Low openness to experience: between subjects) factorial design was used. Participants who score low on Openness to Experience were expected to report their own comfort with hook-ups as low and their peers' comfort with hook-ups as high. Participants who score high on Openness to Experience were expected to report their own comfort with hook-ups as high and their peers' comfort with hook-ups also as high.

Psychology Poster Session I

Sexual Health and Values

Amber Mallery

Faculty Mentor(s):	Nicholas Lee	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

The purpose of this presentation is to report on information learned during an independent study related to personal sexual health topics ranging from the use of body safe materials to core sexual values and exercising such values to promote sexual health and safe practices. Many individuals are unaware of the health risks and damage being posed to their body by daily products aimed at enhancing sexual health and pleasure. Certain product partnerships can lead to a toxic and dangerous combination putting all involved at risk. Experiences and information gleaned from participating in an internship at the Center for Sexual Health and Pleasure (New York City) and Radford Peer Health Education activities will be presented. More specifically, information derived from peer health education events on campus regarding healthy, adaptive sexual practices and decision-making will be discussed in an effort to inform the public about concerns/needs students face. The goal of this project was to immerse myself in the research and best practices associated with sexual health and share these with the Radford University community. Furthermore, this independent study and project will assist me in gaining advanced knowledge and practical experience relevant to my professional career goals associated with becoming an American Association of Sex Educators and Counselors (AASECT) certified professional.

Supporting Our Attitudes: A Mediation Analysis of the Relationship between Social Support and Intent to Exercise

Douglas Buchanan
Jessica Rivers

Faculty Mentor(s):	Adrienne Means-Christensen	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

In a recent study, 43% of college students claimed to not engage in either moderate or vigorous physical activity (PA; Sailors et al., 2013). The lack of PA, combined with the increasing rates of obesity (30.3% among college students and young people ages 20 to 39), has become a significant health problem (Ogden et al., 2014). Past research has investigated factors that could aid in reversing this trend. Social support is one such factor that has been examined with success (Gruber, 2008). However, past research has also shown that social influence can affect an individual's attitudes (Weiwu et al., 2010). In the present study, we tested the hypothesis that the relationship between social support and intent to exercise is an indirect one that is mediated by attitudes towards fitness. The researchers found that the significant relationship between social support and intention to exercise ($B = 0.448$, $t(266) = 3.55$, $p < .001$) was indeed mediated by attitudes toward fitness. When attitudes towards fitness was added to the regression equation, the relationship between social support and intent to exercise dropped below significance ($B = .230$, $t(266)$, $= 1.9$, $p = .059$). Follow-up analyses indicated that attitudes accounted for a 47.8% reduction in the social support-exercise relationship ($Z=3.66$, $p <.001$). This indicates that, rather than a direct effect in which social support of exercise increases exercise intentions, social support of exercise changes attitudes toward exercise, which in turn changes intentions to exercise.

Psychology Poster Session I

Seeking Help From Clergy in the Aftermath of Trauma: A Review of the Literature

Jeremiah Burkhart

Faculty Mentor(s):	Ruth Riding-Malon	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

The aim of this project was to investigate the help-seeking behavior of individuals who have experienced trauma. Specifically, the usage of faith-leaders or clergy for spiritual and mental health support was the focus of this examination. Thirty-four peer-reviewed journal articles were collected using electronic database searches. The main themes and findings of these articles were synthesized to determine which forms of trauma have been studied, in relation to their help-seeking behaviors with clergy. The results could be summarized into five basic areas of trauma exposure: natural disasters, Intimate Partner Violence (IPV), combat exposure of military personnel, abuse/assaults, or general/unspecified trauma. Additionally, the inclusion of rural settings in this study was important to assess the role of under-service in professional psychological services for the help-seeking from clergy. There were variations found in the different types of trauma exposure concerning the number of subjects who pursued contact from clergy in dealing with trauma, those who considered or were open to contacting clergy for trauma related issues, and what reasons they provided for doing so. The interplay of these criterion led to several conclusions about the help-seeking behaviors of trauma survivors and role clergy play in psychological and spiritual healing. Gender frequently was an influential factor in help-seeking attitudes. Barriers such as stigma, fear of confidentiality, perceptions of competency, and concerns over dual relationships often plague help-seeking attitudes towards clergy. In addition, the importance of spirituality and religion often drives individuals to seek help from clergy and should drive the field of psychology to more frequently and competently include spiritual components in psychological services. Finally, the inclusion and collaboration with clergy is likely be greatly beneficial in future practice when working with trauma survivors. Our role as counseling psychologists urges us to utilize this information to better serve the spiritual component of traumatic suffering from a holistic perspective.

Environmental Psychology

Justin Asbee

Faculty Mentor(s):	David Townsend	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

This poster explores the basics of environmental psychology. Environmental psychology is a school/system of psychology that examines the impact the environment has on peoples' behaviors, cognitions, and emotions. Environmental psychologists study both natural and man-made environments. For example, some of the major research topics include space management, environment restoration, and wayfinding. In the ongoing debate in psychology of reductionism vs. non-reductionism scientists in this discipline tend to be reductionist. The reductionism debate in psychology is the debate over whether behaviors can be reduced to small components such as stimulus response, or whether behaviors must be seen as a whole, being the result of a multitude of factors interacting with each other. Other continuing debates in the Psychological Sciences include mind vs. body, freewill vs. determinism, and nature vs. nurture. Environmental psychology's stance and influence on these continuing issues in Psychology will be explored.

Psychology Poster Session I

Coadministration of Alcohol and Nicotine Alters Cell Proliferation in the Hippocampus of Adolescent Rats

Justin Asbee
Ryan Lingg
Anastasia Formica
Frank griffey

Faculty Mentor(s):	Dayna Hayes	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

Throughout the lifespan, the brain continuously produces new neurons. This process is known as neurogenesis and consists of four stages: proliferation, differentiation, maturation, and survival. During adolescents there is an increase in risk taking behavior, which can lead to experimentation with drugs and alcohol. Various changes to neural circuitry occur during adolescence, which may make adolescents particularly susceptible to a host of alterations following drug use. To examine the effects of combined ethanol and nicotine on neurogenesis, adolescent male Sprague-Dawley rats were administered nicotine (0.3. mg/kg; s.c.) or saline every 8 hours for 10 days. Animals were also given ethanol (25% in nutritionally complete diet) or a control diet on the final 4 days of injections. Animals then went through a withdrawal period of approximately 2 weeks during which time they were analyzed on a behavioral task of spatial memory, the Morris water maze. After behavioral testing animals were perfused transcardially and brains were extracted. The brains are being stained using Ki-67, a marker of cell proliferation and new neurons along the subgranular zone of the dentate gyrus will be quantified. Both alcohol and nicotine have been shown to independently decrease proliferation within the subgranular zone. An interaction between the two substances is predicted to produce greater decreases in proliferation then the use of either substance alone. The results of this study will provide insight into some of the changes in neurobiology that are due to dual consumption of alcohol and nicotine, two of the most commonly co-abused drugs.

Meta-Analysis of Cardiovascular Responsivity to Stress in Studies Comparing Groups of Younger and Older Adults

Kathryn De Meglio

Faculty Mentor(s):	Thomas Pierce	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

Abstract / A meta-analysis comparing groups of younger and older adults in regards to increases in systolic blood pressure, diastolic blood pressure, and heart rate while they performed challenging or stressful tasks. This meta-analysis consists of information from published studies that were analyzed for differences among the two groups. The differences in participant reactions to challenging task conditions were measured by the mean changes in systolic blood pressure, diastolic blood pressure, and heart rate. In order to get the change scores from each study the reported group mean baselines for: each physiological measure were subtracted from the reported group means that were taken after the challenging task condition was presented. A regression analysis will be conducted that will predict mean change scores for older adult groups from the mean change scores in younger adults groups. A slope of the line of 1.0 would indicate that the two age groups display equivalent increases in a physiological measure across the range of stressfulness associated with the different types of tasks used in these studies.. We will conduct a test of whether the slope of the line for each physiological measure is significantly different from 1.0 and we will also perform tests to determine if the slopes of these lines change as a function of the gender, age, or race or the groups examined in these studies.

Psychology Poster Session I

Effects of Adolescent Cannabinoid Exposure on Hippocampal Neurogenesis in Female Rats

Kendra Stansak
Frank Griffey
Ashley Rigdon

Faculty Mentor(s):	Dayna Hayes	Psychology
	Pamela Jackson	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

In a national survey on drug use, approximately 7.4% of adolescents ages 12-17 reported using marijuana in the past month with data revealing that adolescent marijuana use has been increasing yearly (SAMHSA, 2014). Animal models of adolescent cannabis use have shown increases in anxiety-driven behaviors, decreases in learning and memory, and decreases in hippocampal neurogenesis as a result of drug exposure. However, research has been predominantly conducted in male subjects despite ample evidence of potential sex-dependent differences. In this study, adolescent female Long-Evans rats were injected with a synthetic cannabinoid agent (.35 mg/kg) or saline and completed a battery of behavioral tasks. At the end of behavioral data collection, rats were perfused and the brains collected for analysis. Tissue sections are being stained with for Ki67 immunoreactivity in order to investigate the proliferation of new brain cells. Ki67-positive cells will be counted in hippocampal sections. Rats in the drug condition are expected to show less evidence of hippocampal neurogenesis than control rats. Rat phenotype is expected to have a moderating influence on hippocampal neurogenesis, with high novelty-seeking rats showing more evidence of neurogenesis than low novelty-seeking rats within the same experimental condition. Results are expected to illuminate neurobiological and behavioral changes facilitated by adolescent cannabinoid use, which may warrant continued study.

Anticipating Future Events: Describing the Future in Realation to Reminisence Theory

Grace Flood

Faculty Mentor(s):	Thomas Pierce	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

The current study aimed to evaluate college students' anticipated futures in relation to autobiographical memory, specifically to the reminiscence bump effect. The reminiscence bump effect is a concrete finding that suggests life events from the late teens to early thirties are significantly more likely to be recalled than life events from young age or middle age. A common tool for looking at life events is called the lifeline method. Each subject's life story is drawn on a graph, including ages of life's ups and downs. In addition, the current study aimed to investigate other variables thought to be related to the way individuals anticipate future life events. The differences and relationships seen in anticipated future life events with regards to their past, generative concern, personality, locus of control, and balanced time perspective will also be described.

Psychology Poster Session I

Person-Centered Approach to Therapy

Sarah Rimmer

Faculty Mentor(s): David Townsend Psychology

Thursday, April 21st Heth 014 3:00 pm-4:00 pm

This poster explores the basics of Person-Centered therapy. Person-Centered is a school of Psychology developed by Carl Rogers. Rogers' approach included a more positive focus of human nature, in comparison to theories which focused on the problematic behaviors or diagnoses of clients. Person-Centered therapy, as the name implies, focuses on creating a safe environment where clients are able to feel validated as they discuss their thoughts, feelings, and experiences. The role of the therapist in Person-Centered is to be an authentic and unconditionally positive supportive, not attempting to "fix" the clients' problems. This school pulled the discipline of psychology toward the dualism side of the position of the ongoing Mind/Body debate in the scientific evolution of Psychology, believing that it was important to understand the interaction of the mind and body. Other continuing debates in the Psychological Sciences include freewill vs. determinism, objectivity or subjectivity, nature vs. nurture, and reductionism vs. non-reductionism. Person-Centered Therapy's stance and influence on these continuing issues in Psychology will be explored.

An Investigation of Alcohol Effects on Condom Use Resistance in College Students

Kamille Harris

Faculty Mentor(s): Jenessa Steele Psychology

Thursday, April 21st Heth 014 3:00 pm-4:00 pm

Alcohol consumption and abuse is a major area of research interest in the United States. It is no secret that college students binge drink at rates higher than their peers. Research has indicated that the effects of alcohol can distort judgment, ability to communicate, self-control, and memory. Alcohol also increases the likelihood of risky sexual behavior. Risky sexual behaviors are actions that may increase the risk of unintended pregnancy, sexual violence, contracting a sexually transmitted disease/infection (STI/D), or other negative outcomes. The present study seeks to investigate the moderator effect of gender on condom use resistance (CUR) and alcohol effects in male and female undergraduate students using a Theory of Planned Behavior (TPB) model. Participants will be expected to self-report using established measures. According to a male-only investigation of CUR using TPB, participants reported significantly higher positive CUR attitudes, stronger CUR intentions, and more favorable normative perceptions of CUR while intoxicated versus their sober counterparts. It is hypothesized that females, while intoxicated, will have significantly more positive attitudes towards CUR, female participants who are not in a relationship will have more negative attitudes towards CUR in comparison to those who are, and men while intoxicated will report higher CUR intentions than intoxicated women. Possible methodology, implications, and beneficial preventative measures to address the sexual health practices of college students will be discussed.

Psychology Poster Session I

Behaviorism: Exploration of Theory

Grace Flood

Faculty Mentor(s):	David A. Townsend	Psychology
	Thomas W. Pierce	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

The school of behaviorism focuses on the psychological processes behind behavior and learning. This particular area of psychology emerged in the early 20th century and has an extensive body of research supporting the theories proposed by early influential behavioral psychologists such as Pavlov, Skinner, Bandura, and Harlow. A famous behaviorist learning theory was proposed by Ivan Pavlov (Pavlov, 1904) - the classical conditioning theory of learning. As most aspiring psychologists know, classical conditioning involves pairing and presenting a biologically salient unconditioned stimulus (US) with a neutral stimulus (CS) - such as a light or tone. This pairing elicits an unconditioned response (UR) in an animal or person. With repeated pairings, the neutral stimulus (CS) takes on the properties of the unconditioned stimulus (US) and can produce the unconditioned response in the absence of the unconditioned stimulus (US). The CS alone elicited response is called the conditioned response (CR). These conditioned associations drive how humans learn (e.g., watching a stoplight turn green means you can go). According to behaviorism theory, humans are born with a cognitively clean slate and are shaped and learn by stimuli in their environments associated with positive or negative reinforcement. This reinforced learning is called operant or instrumental conditioning. Other psychological debates surrounding Behaviorism will be explored and addressed.

The Autistic Child, Early Intervention, and Location

Sarah Falkowitz

Faculty Mentor(s):	David Townsend	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

Autism spectrum disorder (ASD) and Autism are both general terms for a group of idiopathic brain based impairments detrimental to development. ASD is traditionally characterized by difficulties in social interaction, verbal and nonverbal communication, and repetitive/restrictive behaviors. There is currently no cure for Autism, yet one of the most effective treatments for ASD is early intervention (birth to six years of age). Steffenburg and Gillberg (1986) compared the effectiveness of early intervention in ASD children, grouping the children by whether or not they resided in a rural or urban environment. Nevertheless, their study was completed in a European population and there is a paucity of research on the effectiveness of early treatments based on location in North America. Here, using publicly available databases, we examine potential outcome differences for ASD children receiving early intervention in rural versus urban locations. Additionally, we explore if geography has an influence on Autistic compared to non-Autistic children. We predict that the effectiveness of early intervention on educational outcomes will differ based on the location of the intervention. However, we have hypothesized that Socioeconomic status (SES) will mediate these differences.

Psychology Poster Session I

Undergraduate knowledge of Attention Deficit Hyperactivity Disorder

Christine Rooney
Erin Darcy
Faculty Mentor(s): David A. Townsend Psychology
Kendra Stansak Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

Attention Deficit Hyperactivity Disorder (ADHD) is classified by the inability to focus, impulsivity, and hyperactivity. There is a great deal of distortion of the facts about ADHD because there is a lack of distinction between typical child characteristics and the diagnosis of the disorder. We are going to look at the measure of knowledge between freshman and senior college students on ADHD based on demographic characteristics (race, gender, age). We will make a survey on Qualtrics which will be distributed through SONA, we will then transfer the data to SPSS. Low scores will indicate less knowledge of ADHD while high scores will indicate more knowledge of ADHD. We first hypothesized that freshman would have less knowledge of ADHD than seniors. We will analyze this data by using a t-test on SPSS. Secondly we predicted that females would have more knowledge than men on ADHD. We will analyze this data by using a linear regression test. Gender will be the predicted mediator, a mediator being a variable that affects the direction or strength of the relationship in the study. Correct knowledge of Attention Deficit Hyperactivity Disorder is essential to be aware of the symptoms and correctly diagnose people of all ages. If there is a significant difference between age and knowledge of ADHD it would indicate that people learn more about ADHD as they get older.

Predictors of ADHD Knowledge in College Students

Zach Fenstermacher
Thomas Vipperman
Anne Nguyen
Brie Chandler
Faculty Mentor(s): David A. Townsend Psychology
Kendra Stansak Psychology
Thursday, April 21st Heth 014 3:00 pm-4:00 pm

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder characterized by inattention, hyperactivity, and lack of inhibition. Common ideas of what ADHD is amongst the general United States population has become skewed as the diagnosis of ADHD has expanded in recent years. Our group explored how different demographic categories within the college student population effected ADHD knowledge. Participants from freshman and senior psychology classes were evaluated on their ADHD knowledge using a survey through the Qualtrics program. Higher scores on the survey represented higher ADHD knowledge, where lower scores represented lower ADHD knowledge. We hypothesized that seniors will have higher ADHD knowledge than freshman. To test this hypothesis we used a t-test. Our second hypothesis, tested using a multiple regression test, was that within the freshman participants, students older in age will score higher than younger students on ADHD knowledge. We also predicted that race would mediate ADHD knowledge, where African American students would have significantly lower ADHD scores than Caucasian, Hispanic, or Asian students. Accurate knowledge of ADHD is essential because it enables parents to better understand their child's diagnosis and treatment. Our data are still being analyzed, however if there is a significant difference between Caucasian, Asian, and Hispanic students and African American students, then this would indicate that there needs to be a more accessible accurate knowledge program directed towards African American students.

Psychology Poster Session I

Autism Spectrum Disorder

Diona Jeter
Jessica Neighbors
Colin Newcome
Jamie Reumont

Faculty Mentor(s):	David A. Townsend	Psychology
	Kendra Stansak	Psychology
Thursday, April 21st	Heth 014	3:00 pm-4:00 pm

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder where a child's social capability is seriously impaired. There are many misconceptions about ASD, a common one being that the disorder is caused by vaccinations. We looked at a sample of college freshmen and seniors and tested their knowledge of ASD. A survey was conducted through Qualtrics and was accessed by students through SONA. Higher scores on the survey indicated higher knowledge of the disorder, lower scores meant lower knowledge. We hypothesized that senior students would score higher and have a higher knowledge of ASD compared to the freshmen. This will be tested using a t-test. The second hypothesis was that there would be no significant difference in scores between race and gender, but the older the participant, the higher the score. This will be explored using a multiple regression analysis. It is suspected that age will be a mediator and gender will be a moderator. Correct knowledge of ASD is essential because the number of children diagnosed has risen. If there is a significant difference between freshmen and senior scores on their knowledge of ASD, this would indicate that seniors are more knowledgeable of ASD.

Psychology Oral Presentations

Nazi Concentration Camps: Tool for Terror

Audra VanDerwerker

Faculty Mentor(s):	Niels Christensen	Psychology
Thursday, April 21st	Heth 022	4:00 pm-4:15 pm

In 1933, the first concentration camps in Germany were established. Initially, they were intended to temporarily detain people who were considered subversive to the Nazi government. It was a strategy of deterrence – frighten and intimidate the people so they would not oppose the new government. Individuals would suddenly disappear into the camps, returning some time later with stories of mistreatment and fear. This helped to consolidate the gains of the Nazi regime. Then, beginning in 1936, the aims of the camps changed and targeted those that were considered racially impure. Hitler authorized Heinrich Himmler to centralize the camps and to formalize them into a system to assist with the Nazi racial-ethnic social policy. Led by Theodor Eicke, the commandant of Dachau, terrorizing the prisoners became a central part of the organization, structure, and practices at the camps. Concentration camps were no longer temporary facilities, but, instead a mechanism to rid Germany of the Jews and other groups not deemed good enough. Violence, torture, rigorous surveillance, forced labor, and the division of prisoners by ethnicity and race as psychological tools were part of the system and helped to subdue the prisoners. Mass killings helped to further cement the terror. The rules that were imposed by Eicke established terror as keys to managing the camps and the fear of the unknown compounded that terror. This documentary will describe and explore how the psychological torture methods used by the Nazi regime influenced the organization, structure, and practices at the Nazi concentration camps and were designed to instill terror in the inmates.

Psychology Oral Presentations

The Effects of Handling on Immunological Stress in Adolescent Rats

April Tingle
Diamond Cooper

Faculty Mentor(s):	Dayna Hayes	Psychology
	Sarah Redmond	Biology
Thursday, April 21st	Heth 022	4:15 pm-4:30 pm

Stress levels in laboratory rats have been shown to respond to handling treatments that mimic typical adolescent socialization interactions. Adolescent rats were subjected to physical manipulations to assess their potential impact on stress systems; treatments included tickling, playing, restraint, and minimal handling. Body weights, blood smears, serum samples, and ultrasonic vocalizations were collected throughout all 5 weeks. A Delayed-type hypersensitivity (DTH) test was also administered over the course of the handling process. DTH is a cell-mediated response to an antigen that is introduced into the body. The duration and degree of inflammation can be impacted by stressors which inhibit the immune response. We sensitized rats to 2,4-Dinitrochlorobenzene (DNCB) on the abdomen and later assessed the DTH response on the ear lobes. Degree of inflammation was characterized by measurements of ear swelling. A DTH test started on day 10 of handling showed significant inflammation in all treatment groups at 48 hours post-application of DNCB, but not at 24 or 72 hours ($p<0.0001$) indicating similar level and timing of DTH reaction. This effect was not detected during a second DTH test at day 24, however the duration of the inflammatory response was longer in rats which had been tickled or played with ($p=0.031$). Taken together, these results suggest that handling by researchers can significantly impact these measures of stress, and we will continue to analyze vocalizations, antibody levels, and circulating blood cell populations.

The Good, Bad, and Indifferent: Do Habits Have Trait-Like Qualities?

Kathryn Rehberg

Faculty Mentor(s):	Niels Christensen	Psychology
Thursday, April 21st	Heth 022	4:30 pm-4:45 pm

The automatic nature of habits means that these behaviors have a surprising – and often hidden - influence over a wide range of daily actions when compared to the influence of conscious goals (Bargh, 1994, 1996). Although goals influence behaviors when habits are weak, goals become less influential as the strength of the habit increases (Neal et al., 2011; Neal et al., 2013). Despite habits' importance, basic questions about the construct remain. Previous research on habits has predominately examined how to break bad habits, or promote positive habits; however, research has yet to assess the extent to which habits have trait-like qualities (Neal et al., 2013). The primary goal of the current research is more fundamental: To what degree do individuals vary in their strength of habits across positive and negative habits? That is, do habits have trait-like qualities? If so, are men and women equally likely to express habits in a trait-like fashion. To answer these questions, 350 Radford University undergraduates will report habit strength on ten different positive and negative habits. If participants' habit strength load on a single factor, it will suggest that some people are more prone to habitual behavior than others. Alternatively, it could be that habit strength loads on two or more factors. That result would suggest that people are prone to particular types of habits or that specific habits are idiosyncratic to each person.

Psychology Poster Session II

Gender Bias in the Hiring Process

Heidi Warner **Caroline Hilburger**
Chameka Day **Gabrielle Smith**
Martha Epperly **Abigail Mittelman**
Myriah Jenkins **Kaitlyn O'Quinn**
Michaela Reardon

Faculty Mentor(s): Jeff Willner Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

Many studies have focused on gender bias in the workplace and in schools (Foschi, 2000; Heilman, Wallen, Fuchs, & Tamkins, 2004; Phelan, Moss-Racusin, & Rudman, 2008). These studies concerning gender bias in the workplace have suggested that women often receive less job opportunities than men including lower salary offers, are perceived as less competent than men, and are perceived as less deserving of faculty mentoring (Moss-Racusin, Dovidio, Brescoll, Graham, & Handelsman, 2012). The purpose of this class project is to evaluate the role of gender bias in the hiring process. For this study, a job description for a tutor will be used try and elicit biases toward individuals applying for one of two positions: one class that is thought of as stereotypically masculine and one that is feminine. The project will consist of undergraduates from Radford University recruited through SONA. A male, female, or gender neutral resume will be shown to the participant; they will review the resume and determine how hirable and competent the candidate is for the job that they are applying for. With the results of previous studies in mind, it is hypothesized that males will be seen as more competent and hirable than females in a stereotypically male field such as statistics, and females will be seen as more hirable and competent than males in a stereotypically female field such as child psychology. The present study builds on previous research by Moss-Racusin, Dovidio, Brescoll, Graham, and Handelsman (2012).

Knowledge of Autism Spectrum Disorder

Brittany Bowen **James Olsen**
Amanda Marks **Carisma Fuller**

Faculty Mentor(s): David Townsend Psychology
Alyson Faires Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by social, cognitive, and communicative functioning impairments throughout the lifespan. There exists a great deal of misinformation, misconception, and fact distortion regarding the etiology, symptoms, and treatment methods regarding ASD. We examined the differences in knowledge of ASD between senior psychology students and freshman level students at Radford University. Data collection involved an online survey, created on Qualtrics and made accessible to respondents via SONA. Higher scores on the survey correspond with a higher level of knowledge and understanding of ASD. The researchers hypothesized that senior respondents would score higher on the survey than would the freshman group, indicating a higher level of knowledge. An independent samples t-test, conducted on an SPSS system was used to compare the means of the two groups to test the first hypothesis.Researchers also hypothesized that age would have a significant effect on students' survey scores, while gender and race would produce no significant effect.Researchers hypothesized that age would be determined to be a moderator, impacting the strength and direction of the effect on our criterion variable (survey scores)To test the second hypothesis, a linear multiple regression test was run, in order to evaluate the individual effects of each secondary variable. Accurate knowledge and understanding of ASD is crucial in developing future treatment methodology for individuals suffering from ASD. If the results support the hypotheses, and senior students score significantly higher, it would indicate that seniors possess a greater degree of understanding of ASD and its characteristics

Psychology Poster Session II

Resiliency as a Moderator of Adolescent Cannabinoid Exposure and Novelty-Seeking Phenotype: Effects on Memory in Adult Female Rats

Norman Hoyt **Kyle Benjamin**
Kayla Petzold **Ashley Rigdon**

Faculty Mentor(s): Pamela Jackson Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

Cannabinoids have been shown to cause long-term changes when administered to adolescent rats, but the specific changes vary from study to study (e.g., Schneider, Schömig, & Leweke, 2008; Abush & Akirav, 2012). Because of this variability, the current study focused on factors that might interact with marijuana in developing rats. We examined how early novelty-seeking behavior, estrous cycle and cannabinoids affect spatial and object recognition memory in adult female rats. Before drug exposure, all female rats were classified into different phenotypes: high-responders (HR) show increased exploration and activity; low-responders (LR) show diminished activity and low exploratory behavior; moderate-responders (MR) fell in the middle. Chronic cannabinoid exposure has also been shown to reduce food intake in adolescent animals; because adolescence is a critical period for development it is important to understand the effect it may have on adult memory separate from the cannabinoid exposure. A second control group was used that received the same amount of food that drug animals consumed to control for the reduction in weight gain. In order to measure memory an object placement and an object recognition task were utilized. All subjects were female Long-Evans rats, and were tested for estrous phase before each behavioral task. Preliminary results suggest that only the control and yoked HR animals had good spatial memory, the cannabinoid exposed animals did not. All LR groups demonstrated impaired spatial memory. In the preliminary data, only the control HR animals had good recognition memory; all other groups showed impaired recognition memory for objects.

Workaholism as a Mediator of the Relationship between Organizational Commitment and Work-Family Conflict

Angelica Zabdyr **Margie Clinger**
Chelsie Stafford **Kamille Harris**

Faculty Mentor(s): Nicole Petersen Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

The current study investigated the relationship between Organizational Commitment, Workaholism, and Work-family conflict. Specifically, this study was conducted to investigate whether Workaholism served as a mediator of the relationship between Organizational Commitment and Work-family conflict. In order to examine this relationship, a snowball sample of 160 working adults employed in various occupations were surveyed using Qualtrics. It is expected that Organizational Commitment will be positively related to Work-family conflict and Workaholism will mediate that relationship. Implications of these findings, directions for future research, and study limitations are discussed.

Trust in Management as a Mediator of the Relationship between Supervisor Support and Intention to Quit

Bianca Mark- Okai **Octavia Shanks** **Kamille Harris**

Faculty Mentor(s): Nicole Petersen Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

The current study investigated the relationship between supervisor support, trust in management, and intention to quit. Specifically, this study was conducted to investigate whether trust in management served as a mediator of the relationship between supervisor support and intention to quit. In order to examine this relationship, snowball sample of 160 working adults employed in various occupations were surveyed using Qualtrics. It is expected supervisor support will be related to intention to quit and trust in management will mediate that relationship. Implications of these findings, directions for future research, and study limitations are discussed.

Psychology Poster Session II

Weighing Opinions on Rape: Determining the Effects of Time Pressure on the Fundamental Attribution Error

Heather Berry
Jennifer Hurley

Faculty Mentor(s):	Jeffery Aspelmeier	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

This experiment is an extension of Jones and Harris' (1967) work on the Fundamental Attribution Error (FAE) and tested whether time pressure can strengthen the FAE. Participants consisted of approximately 100 Radford University students. In this experiment the participants were asked to read an essay presumably written by a student for a class and then try to determine the author's true attitudes about the essay topic. The participants were randomly assigned to one of 4 conditions comprising two separate manipulations. Half of the participants were asked to assume the author of the essay chose the topic and the other half were asked assume the topic was assigned by the instructor. Across these two conditions, half of the participant were also either given an unlimited amount of time to rate the author's attitudes or were only given 2 seconds to complete each rating. It was expected that the participants who are under high time pressure will be more likely to show the FAE and assume that the essay topic reflects the author's attitudes, even when the topic was assigned to the author. In contrast, participants with unlimited time should be less likely to say that the essay reflects the author's true attitudes when the topic was assigned to the author.

Job Stress as a Mediator of the Relationship between Trust in Management and Intention to Quit

Jenna Bauer **Cienna Taylor**
Ouida Noffsinger **Kamillie Harris**

Faculty Mentor(s):	Nicole Petersen	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

The current study investigated the relationship between trust in management, job stress, and intention to quit. Specifically, this study was conducted to investigate whether job stress served as a mediator of the relationship between trust in management and intention to quit. In order to examine this relationship, a snowball sample of 160 working adults employed in various occupations were surveyed using Qualtrics. It is expected that trust in management will be negatively related to intention to quit and job stress will mediate the relationship between trust in management and intention to quit. Implications of these findings, directions for future research, and study limitations are discussed.

Resiliency as a Moderator of the Relationship between Workaholism and Burnout

James Pointer **Austin Judd**
Tanner Short **Kamille Harris**

Faculty Mentor(s):	Nicole Petersen	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

The current study was conducted to investigate whether resiliency served as a moderator of the relationship between workaholism and burnout. In order to examine this relationship, a snowball sample of 160 working adults employed in various occupations were surveyed using Qualtrics. Data will be analyzed using a regression framework. It is expected that the relationship between workaholism and burnout will be positive, and that relationship will be stronger when resiliency is low compared to when resiliency is high.

Psychology Poster Session II

Adolescent Cannabinoid Exposure and Novelty-Seeking Phenotype: Food Intake, Anxiety, and Activity in Adult Female Rats.

Elizabeth Daidone
Nora Puryear
Ashley Rigdon

Faculty Mentor(s):	Pamela Jackson	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Cannabinoids have been shown to cause long-term changes when administered to adolescent rats, but the specific changes vary from study to study (e.g., Schneider, Schömig, & Leweke, 2008; Abush & Akirav, 2012). Because of this variability, the current study focused on factors that might interact with marijuana in developing animals. We examined how early novelty-seeking behavior, estrous cycle and cannabinoids affect activity and anxiety in adult female rats. Before drug exposure, all rats were classified into different phenotypes: high, moderate, or low responder. Cannabinoids have also been shown to negatively affect food intake and body weight in rats (Miller & Drew, 1974). Because malnutrition during adolescence can have a negative impact on development it is important to understand its impact on activity and anxiety in adulthood. In order to test this a second control group was used that received the same amount of food that drug animals consumed to account for the decreased food intake in drug animals. All animals were tested as adults for activity and anxiety in an open field to assess the long term effects of adolescent cannabinoid exposure. All subjects used were female Long-Evans rats, and were examined for estrous phase before data collection in order to understand estrous influences on activity and anxiety. Preliminary results suggested that drug animals decreased food intake and body weight gain. There was a significant interaction effect between drug exposure and phenotype in activity. Preliminary analyses also revealed that high-responder animals were less anxious than low-responders.

Undergraduate Knowledge of Attention Deficit Hyperactivity Disorder

Alex Brown
Tori Thornton
Rebecca Weller

Faculty Mentor(s):	David Townsend	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Attention Deficit Hyperactivity Disorder (ADHD) is a developmental disorder characterized by difficulties with inattention, impulsivity, hyperactivity, and following directions. There are a number of misconceptions regarding ADHD particularly in a classroom setting. This poster compares the level of ADHD knowledge between Radford University freshman enrolled in psychology classes and seniors in a developmental research class. Using a survey hosted by Qualtrics we measured ADHD knowledge for both groups of undergraduates. A higher score on our survey indicates a higher knowledge of ADHD while a lower score indicates a lower knowledge of ADHD. We hypothesized that seniors in developmental research would have greater knowledge of ADHD than those freshman in psychology. We will use a t-test to explore if there is a significant difference between the two groups. Between the variables of age, race, and gender, we hypothesized that race would have an effect on the knowledge of ADHD of our freshman participants. To test if race effected the results we will use an ANOVA to determine if there is a significant difference between the demographic groups. Correct knowledge of ADHD is essential for parents to make better, informed, decisions about diagnosis and treatment for their child. If there is a significant difference between those who are seniors in a developmental research class and those who are freshman in a psychology class than this would indicate that there needs to be a better outreach to those who are of the younger generation to be more informed of this disorder.

Psychology Poster Session II

Role Overload as a Mediator in Relationship to Organizational Citizenship Behavior to Work Family Conflict

Holly King **Olivia Lopez**
Lindsey Bennett **Kamille Harris**

Faculty Mentor(s): Nicole Petersen Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

The current study investigated the relationship between organizational citizenship behavior, role overload and work/family conflict. Specifically, this study was conducted to investigate whether role overload served as a mediator or explanation of the relationship between organizational citizenship behavior and work/family conflict. In order to examine this relationship, a snowball sample of 160 working adults employed in various occupations were surveyed using Qualtrics. There were a few qualifications to participate in the survey. We hypothesized that role overload would mediate the positive relationship between organizational citizenship behavior and work/family conflict. Implications of these findings, directions for future research, and study limitations are discussed.

Testing Pluralistic Ignorance Using Radford University Students' Drinking Habits

Krystyn Davis **Danayer Mann** **Emily Steffey**

Faculty Mentor(s): Jeffery Aspelmeier Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

This class project tested whether the pluralistic ignorance effect, found within participants' ratings of their own comfort with risky drinking behaviors and their perception of how comfortable their peers are with alcohol, could be reduced by providing participants with information about actual drinking norms on their campus. Participants consisted of approximately 100 Radford University undergraduate students who were 17 years of age or older. Participants first provided ratings of self and peer comfort with risky drinking through a series of questions using a 5 point rating scale (1 being the least comfortable and 5 being the most comfortable). Next, participants were shown facts about the actual drinking habits of students at RU. Finally, their rating of self and peer comfort with risky drinking behaviors were competed a second time. It was predicted that participants' initial rating of their own comfort would be significantly lower than their ratings of their peers' comfort. After being shown the drinking habit facts, their ratings of their peers are expected to be more consistent with their self-ratings.

The Impact of Race and Incarceration on Future Wages and Homeownership

Alyson Faires

Faculty Mentor(s): Jenessa Steele Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

Between 2007 and 2011, 14.3% of the population was living below the poverty line (Macartney, Bishaw, & Fontenot, 2013). Macartney et al. (2013) found that, while Asians had poverty rates below the national average, every other minority group has poverty rates above the national average. Reports on racial inequality in poverty are not new, with Bloome (2014) reporting that this state of inequity has been relatively constant over the last 40 years. It is of great significance to examine how these living conditions are impacting minority groups. Currently, about 60% of those imprisoned belong to minority groups (The Sentencing Project, 2014). The current study seeks to build upon previous research in an attempt to define the gap between race, incarceration rates and wealth. Wealth will be defined as a combination of homeownership and reported wages in an attempt to capture disparities in both categories. The researcher expects race will have a significant impact on both homeownership and wages earned; specifically, it is predicted that minorities will be less likely to own homes and more likely to report lower wages than their White counterparts. In addition, it is expected that previous incarceration will lower the chance of a participant being a homeowner and will also lower his or her wage. It is expected that minority participants will have higher levels of incarceration and that this will play a role in impacting minority measures of wealth (i.e. wages and homeownership).

Psychology Poster Session II

Cognitive Behavioral Therapy (CBT): Putting Theory into Practice

Crystal Hank

Faculty Mentor(s):	David Townsend	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

This poster explores the basics of Cognitive Behavioral Therapy (CBT). CBT is an approach to therapy based on the basic concept that our thoughts greatly influence our emotions and behaviors. Key figures such as Albert Ellis and Aaron Beck each provided variations of how to put this theory into practice, with Ellis focusing on a more confrontational, rational emotive approach and Beck relying more on a collaborative exploration of unhelpful, or "irrational" thinking patterns. Modern CBT practices combine elements of each of these approaches, and current therapists who practice from this perspective tend to tailor treatment to the unique needs of each client. This poster will explore the contributions of key figures in the field of CBT and will provide information of how the theory gets put into the practice of counseling. Both the strengths and weaknesses of this approach will be considered, and a discussion of CBT's fit with multicultural concerns will be included.

Clergy and the Treatment of Posttraumatic Stress Disorder (PTSD)

Kamille Harris

Faculty Mentor(s):	Ruth Riding-Malon	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Treating Posttraumatic stress disorder (PTSD) is not exclusive to mental health professionals. Literature indicates that the role of clergy in the treatment of PTSD is quite significant. PTSD can be experienced following an individual's exposure to a traumatic event such as a natural disaster, experiencing combat, a car accident, interpersonal violence or sexual assault. It is important to address how such symptoms interfere with daily living; this may be a common factor influencing why people choose to reveal their symptoms to clergy or other religious figures. There is a deficiency in the literature regarding how PTSD is identified and understood by clergy. Minimal research has examined how they treat it in their congregations, despite the considerable number of occasions when trauma confronts them. There is more than one answer as to why clergy is sought for coping with symptoms of PTSD, including accessibility, financial convenience, spiritual congruence, and decreased humiliation, but there is no debate whether their role is noteworthy in this regard and deserves proper acknowledgment. Collaboration between psychologists and clergy appears to be a way to increase support for traumatized individuals.

Undergraduate Knowledge of ADHD: Levels of Understanding

Jules O'Brien **Sam Norman**
Madeline Milam **Sarah Kim**

Faculty Mentor(s):	David Townsend	Psychology
	Alyson Faires	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Attention Deficit Hyperactivity Disorder (ADHD) is a developmental disorder characterized by hyperactivity with a persistent pattern of inattention that interferes with functioning and development. There is a great deal of misinformation concerning basic knowledge of ADHD. This poster looked at ADHD knowledge between Radford University freshman and seniors enrolled in psychology courses. Using a survey hosted by Qualtrics, we measured ADHD knowledge for both groups of undergraduates. Lower scores on the survey indicated less knowledge than higher scores on the survey. We hypothesized that seniors would have more knowledge on ADHD and score higher than the freshman. Mean group scores were compared using a t-Test. We hypothesized that gender and race would have no significant difference on the scores. To test if gender and race impacted the results, a t-Test was used to compare the differences. Correct knowledge of ADHD is essential to help diagnose and treat the disorder. The results of a pilot study showed higher scores in senior participants than freshman participants indicating stronger knowledge in ADHD in seniors.

Psychology Poster Session II

Abusive Supervision and Organizational Deviance: The Moderating Effect of Subordinate's Antisocial Personality Traits

Lidia Lazaro-Arroyo

Faculty Mentor(s):	Nicole Petersen	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Over the past decade, previous research has established the negative impact abusive supervision has on organizations and employees (Schyns, & Schilling, 2013). Although previous research has identified a number of factors that influence the presences and perception of abusive supervision (e.g., leadership style, supervisor personality, etc.; Mathieu, Neumann, Hare & Babiak, 2014 and Nielsen, 2013), one relatively understudied area is subordinate style. In this study, we propose a model to investigate the moderating effect of antisocial personality traits (e.g., narcissism, psychopathy, and Machiavellianism) in subordinates on the relationship between abusive supervision and counterproductive work behavior. It is expected that antisocial personality traits will strengthen the relationship between abusive supervision and counterproductive work behavior. In other words, subordinates with antisocial personality characteristics will be more likely to retaliate against supervisors who they perceive as being abusive.

The Impact of the Hoffman Report on Counseling Psychology Programs

Jeremiah Burkhart
Jordan Joyner

Faculty Mentor(s):	Nicholas Lee	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Over the years, the American Psychological Association (APA) has been accused of colluding with the Bush administration to support acts of torture during the war on terror (Pope, 2015), which were dismissed by APA as an organization as well as its members. In 2014, an independent review was commissioned to shed light on these accusations with a purpose of ensuring transparency and providing an objective, unbiased view of the facts. In July 2015, the "Hoffman Report," named after the lawyer in charge of the investigation, found that individual members of the APA were involved in the then current administration's enhanced interrogation technique (EIT) program post-9/11 (Hoffman et al., 2015). If true, this type of involvement explicitly violates the APA code of ethics (APA, 2002) and the ideals of counseling psychology (Packard, 2008). Key APA members and leaders actively attempted to weaken anti-torture resolutions (Hoffman et al., 2015). The aim of this study was to determine what, if any, the Hoffman Report has impacted Counseling Psychology programs. Themes (Distrust, Prevention/Activism, and Where do we go from here?) were determined to have potentially significant impact upon the counseling psychology field. Recommendations for future research and topics for discussion are the results of this preliminary research.

Psychology Poster Session II

Emphasis on Self-Care in APA-Accredited Counseling Psychology Doctoral Programs

Ian Evans
Rachel Turk
Elizabeth Cottrell

Faculty Mentor(s):	Nick Lee	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Graduate students experience pressures in a demanding atmosphere, which can result in physical, mental, and/or emotional exhaustion. For graduate psychology students in particular, this toll can yield serious consequences as they are tasked with providing mental health care services for their clients while balancing academic requirements and personal life. By utilizing self-care, students can manage stress, avoid experiencing burnout, and promote personal wellness. However, programmatic implementation of self-care protocols in graduate psychology programs is severely lacking, and research has primarily focused on clinical psychology, rather than counseling psychology graduate students (Bamonti, Keelan, Larson, Mentrikoski, Randall, Sly, Randall, Sly, Travers, & McNeil, 2014). Through an analysis of current research and APA accredited counseling psychology programs it is clear that even though self-care is viewed as an important emphasis area, few schools have implemented formal self-care. The following paper will address the varying emphasis APA-accredited counseling psychology doctoral programs place on self-care for their graduate students. Recommendations for training programs are discussed.

Conceptualizing Mental Illness: Supernaturalism versus Naturalism

Ashley Rigdon

Faculty Mentor(s):	David Townsend	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

This poster explores how mental illness has been defined and conceptualized throughout history. In general, definitions of mental illness have historically revolved around two paradigms: natural and supernatural explanations. Natural explanations have focused on objective, and empirical science to explain mental illness whereas supernatural explanations have historically focused on subjective spiritual/magical descriptions. Cultures that emphasized natural explanations, such as the ancient Greco-Romans and thinkers of renaissance Europe, focused on physiology and biology to explain changes in behavior and mood. However, a revolving zeitgeist, motivated by turmoil and strife, revived supernatural explanations and popularized witchcraft, demon possession, and will of the god(s) as an explanation for deviant and abnormal behavior. Current trends in mental illness have focused on a growing interest in the description of mental illness as a result of both natural and environmental influences. Examples of both supernatural and natural explanations throughout multiple points in history will be discussed.

Psychology Poster Session II

The Development of the Hookup Motivations and Participation Survey (HMPS)

Jordan Joyner
Rachel Turk
Elizabeth Cottrell
Ian Evans
Jeremiah Burkhart

Faculty Mentor(s):	Jay Caughron	Psychology
	Tracy Cohn	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Having knowledge about motivations for hooking up can be a useful aid in determining physical and psychological needs, allowing for better understanding of self. Better understanding of these motivations can allow participants to develop self-awareness to improve their sexual health and knowledge. The purpose of this project was to develop and validate a measure assessing motivations for hooking up among college students. The researchers completed an exploratory factor analysis with a sample of undergraduate college students (N = 225). The final 43 items reflected a five factor model, which explained a significant portion of the total variance. The five factors in the model included: Gratification, Emotional Coping, Conformity, Freedom from Commitment, and Escape. Results indicated strong internal consistency for the factors ($\alpha = 0.952$ to .853). The HMPS was externally validated against a pre-existing validated measure, the Hookup Motives Questionnaire (HMQ), with strong correlations between comparable factors. Practical uses of the HMPS go beyond the realm of research; it can be utilized in university health clinics and counseling centers. This research illuminates the complexity in motivations for hooking up among college students. The HMPS adds to the existing body of research on hookup culture in college students by providing a deeper understanding for the motivations behind participating in a hookup.

In Touch with Autism

Heather Huggins **Daphne Morrison**
Laurencia Porter **Lindsey Shannon**

Faculty Mentor(s):	David Townsend	Psychology
	Kendra Stansak	Psychology
Thursday, April 21st	Heth 014	5:00 pm-6:00 pm

Autism Spectrum Disorder (ASD) is a developmental disorder characterized by social cognition and behavioral disabilities. There is a great deal of distortions of the facts about ASD including that child vaccinations could lead to ASD and that ASD could be cured. This poster examines the differences, if any, that existed between the knowledge about ASD between Radford University freshmen enrolled in psychology classes and seniors in a developmental research class. Data was collected by using a survey hosted by Qulatrics that was administered online. Lower scores on our survey indicate less knowledge about ASD. The researchers hypothesized that seniors will have a higher mean score from the surveys than freshman. In the freshmen class, participants older in age were expected to have lower mean scores. The participants were first asked their age and gender, then they continued on to answer questions regarding their knowledge on ASD. The researchers analyzed the data using a T-test and used a multiple regression test for demographics. A moderator explains a weak association between variables; gender is expected to be a moderator. Correct knowledge of ASD is necessary to improve education for individuals on knowledge of the disorder. If there is a significant difference between age and the knowledge on ASD this would indicate that freshmen need to be better educated on ASD.

Psychology Poster Session II

Factors that Help GPA in College Students with ADHD

Sarah Falkowitz

Faculty Mentor(s): Jenessa Steele Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder that affects attention and concentration and can cause a person to be hyperactive, as well as impulsive. ADHD has been researched a lot in regards to its effects on academic achievements or Grade Point Average (GPA). However, most of this research has been done on children and adolescents, and little research has been done on college students. The study habits of students with ADHD can affect their GPA. The Biggs two-factor study process questionnaire was used by Simon-Dack and Rodriquez (2014) in a study that looked at college students with ADHD's study strategies and approaches, having either motive or strategic strategies and having either deep or surface approaches. Previous research has also looked at whether or not there is a connection between ADHD students being registered with the Office of Disabilities and receiving accommodations and their GPA. Since there is so little research on the topic, the connection is unclear. In this study, students with ADHD will be asked to fill out a questionnaire that will assess the accommodations they are receiving, if any, their study habits, and their GPA. It is predicted that college students with ADHD that are registered at the Office of Disabilities will have a better GPA than students with ADHD that are not registered with the Office of Disabilities. Additionally, it is predicted that the study habits of students with ADHD will mediate the effect of receiving accommodations from the Office of Disabilities and GPA.

Undergraduate Knowledge of Autism Spectrum Disorder

Andrew Meadows **Ashley Tenney**
Latrice Green **Ricky Yates**

Faculty Mentor(s): David Townsend Psychology
Alyson Faires Psychology
Thursday, April 21st Heth 014 5:00 pm-6:00 pm

Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder characterized by persistent problems in social communication and interaction. There is a wealth of misinformation concerning the etiology of Autism Spectrum Disorder. We looked at knowledge of Autism Spectrum Disorder among underclassman in Psychology 121 and seniors in Psychology 491. To collect data we created a survey using Qualtrics, posted the survey using SONA, and analyzed the results using SPSS. A high score on the survey would indicate more knowledge concerning ASD and a low score would indicate less knowledge concerning ASD. Our hypothesis was that underclassman in Psychology 121 would score lower on the survey then seniors in Psychology 491. To test this hypothesis we examined the scores using a T-Test on SPSS. Our second hypothesis was that age would make a significant difference in scores where race would not have a significant difference. To test this hypothesis we examined the scores using a Multiple Regression on SPSS. Age and gender served as mediators for this study whereas race served as a moderator for this study. Correct knowledge of ASD is essential in early diagnosis and treatment in children. Pilot studies indicated that there is a significant difference between underclassman in Psychology 121 and seniors in Psychology 491, this would indicate that seniors have more knowledge than underclassman concerning ASD.

Interdisciplinary Oral Presentations

The Impact of Substance Use on College Student Success and Welfare

Jenna McClintock

Faculty Mentor(s):	Riane Bolin	Criminal Justice
	Maggie Pate	Criminal Justice
Thursday, April 21st	Heth 022	5:00 pm-5:20 pm

Substance use on college campuses is relatively prevalent. In 2013, 39% of college students reported having used an illicit drug in the past 12 months. Rates of alcohol use were even higher, with 75.6% of students reporting past year use and 63% reporting past month use. Due to the high rates of use, it is important to explore what impacts, if any, such use is having on the lives of college students. The proposed study aims to address this gap by exploring the impact of substance use on student success and welfare at a mid-sized university.

The War on Terror: Analysis of the Justification for the 2003 US-Iraqi Conflict

Brittany North

Faculty Mentor(s):	Tay Tan	Intercultural Studies
Thursday, April 21st	Heth 022	5:20 pm-5:40 pm

The United States entered their war on terror beginning in 2011 after September 11th attacks on US soil. The unofficially declared war has been justified by the U.S. government as preemptive self-defense against terrorist organizations, specifically Al Qaeda. However, the international world has disagreed with the US on their justification for the conflict. According to just war theory, the US may have not been right in their pursuit of Iraq, despite the possible threat of Iraq having weapons of mass destruction. Throughout the Iraq conflict, the US has violated many international resolutions including the Geneva Conventions, the UN Charter, and the UN Convention Against Torture. There is also evidence that points to many human rights violations conducted by the US towards Iraqi civilians; including arbitrary killings and forced disappearances of noncombatants. The US-Iraq clash conflicts with just war theory and international law, which could expose the US to trial and the payment of reprimands for war crimes and human rights violations committed in Iraq.

Model United Nations

Michael Wilson

Faculty Mentor(s):	Paige Tan	Political Science
Thursday, April 21st	Heth 022	5:40 pm-6:00 pm

The aim of the Model United Nations Club is to expose the school and club members to how the United Nations works. Our presentation can include things like the limitations of the United Nations. Critics of the United Nations have long claimed that the United Nations acts too slowly in cases of genocide or war. What is interesting to note is that very few proposals to eliminate the UN are successful.l Questions come up such as what would you replace it with? The answer is although the UN might not be 100% effective, it is the only body fully capable of dealing with the complexities of the ever changing world. It is this ever changing dynamic of the world that the Model United Nations looks at. It is because of our knowledge of international affairs, laws and political changes that this club is able to compete and win awards at Model UN Conferences. In the past, this club has successful captured awards in Philadelphia and North Carolina. As we continue to compete in conferences, we learn to improve or diplomacy, public speaking skills, cooperation, and general understanding of the rules and regulations that govern the inter-workings of the United Nations. Through this, we are able to learn real life lessons that help us in the real world. By solving complex international problem in Model United Nations, we learn to transfer those same skills of problem solving into real world application in the workplace and our future jobs.

Scholar Citizen Showcases

Senior Health and Wellness Fair at Christiansburg Recreation Center

Ana Pereira Pla **Courtney Burton** **Chris Thompson** **Ethan Collie**
Kyle Perez **Laura Reasor** **Laurie George** **Lindsey Birch**
Marquitta Foster **Mollie Dudley** **Sarah Moses** **Terri Brocki**
Tony Dellorso

Faculty Mentor(s):	Jyotsna Sharman	Nutrition and Dietetics
Thursday, April 21st	Heth 043	2:40 pm-3:00 pm

In NUTR 317, students learn about the nutritional requirements, eating behaviors, and nutritional concerns of older adults. On February 25th, students participated in the Senior Health and Wellness Fair at Christiansburg Recreation Center. The learning experience was integrated into the students' academic curriculum. The purpose of this service-learning experience was two-fold: (a) It provided students an opportunity to apply classroom learning, nutrition knowledge and communication skills to benefit local senior residents by educating them on nutritional aspects of health promotion and disease prevention. It also helped students improve their critical thinking skills, foster teamwork by increasing interaction with classmates outside the classroom setting, engage with the community, and help improve their confidence while executing social responsibility. (b) It met the needs of the target community. By offering nutritional screenings and information to the senior residents, this project aimed at increasing health awareness, motivating attendees to make positive changes in their food choices and eating practices, and also educating them about the nutritional resources available in the community. After the culmination of this experience, students completed a reflection activity that guided them in examining their own perspectives and assumptions about themselves, their community, the organization and people they work with in the community, and the impact of these perceptions on their service. The activity further encouraged students to consider their goals as personally and/or professionally community-oriented people. Finally, this activity facilitated students in their exploration of self, as well as the community needs and issues, rather than asking them to develop pre-mature solution to complex civic challenges.

Why Homegrown Terrorism is Increasing in France

Cathrine Cashwell

Faculty Mentor(s):	Paige Tan	Political Science
Thursday, April 21st	Heth 043	3:00 pm-3:20 pm

Thesis: The current trend of discontentment through various political and cultural factors, within the French-Muslim communities, is increasing homegrown terrorist activities on France's home front. France has been the subject to various geopolitical studies on how homegrown terrorism is increasing annually within the French borders. There are several existing dispositions on the relationship between France and homegrown terrorism: 1) the first examines past historical, as well as contemporary, events between international affairs of the Levant and France; 2) the second focuses on the controversy of strict secularism in French government, this 'democratic' rule of law, known as Laïcité; 3) the third looks into the impact of how Laïcité regulations have caused oppression within the French-Muslim community. These three factions all coincide with the obvious increase of young French-Muslim citizens who are converting to Salafi jihadist. The current trend of discontentment through various political and cultural factors, within the French-Muslim communities, is continuously increasing homegrown terrorist activities on France's home front.

Scholar Citizen Showcases

Women's Voices in Appalachia

Katelyn Bailey
David Doherty

Faculty Mentor(s):	Theresa Burriss	Appalacian Studies
Wednesday, April 20th	Heth 016	3:20 pm-3:40 pm

In this presentation, students will discuss historical and contemporary Appalachian women's contributions to society. They will focus on Appalachian activists and their roles in the fight for environmental and social justice. For example, Appalachian women have a strong tradition of speaking out against the coal industry and the damages it wreaks on human and nonhuman. Additionally, students will explore how these women defy Appalachian stereotypes, such as the ignorant, emotional, barefoot and pregnant, and aged before her time female. Some of the overarching themes include how the women identify as Appalachian and how they negotiate socially constructed gender roles to serve as protectors of their families and communities. Students will examine the women's political participation at the local, state, and federal levels. Moreover, they will highlight the women's advocacy for healthy communities that include preservation of culture, heritage, and basic human rights, as well as educational opportunities. Through sharing Appalachian women's personal stories, the students will bring to life the challenges and triumphs of these brave individuals.

Scholar Citizen Poster Presentation

Do Grasshoppers Respond to Neighbors Experiencing Fear by Altering their Body Chemistry?

Marisa Dameron

Faculty Mentor(s): Dr. Chelse Prather Biology
Thursday, April 21st Heth 043 4:00 pm-5:00 pm

Grasshopper body decomposition is crucial to nutrient turnover in grasslands. Grasshoppers exposed to fear have less beneficial nutrients for microbes that break down bodies, and thus slow decomposition. Other organisms can defend themselves when they sense neighbors in danger (e.g., humans respond to others yelling; plants defend themselves upon sensing volatile compounds from neighbors being eaten, etc.). I will determine if grasshoppers alter their body chemistry when sensing scared neighbors. Juvenile grasshoppers (2nd instar) will be reared in paired cages (3 grasshoppers per cage) both with and without spiders (1 spider per cage) to determine if grasshoppers (without spiders) respond to their neighbors experiencing fear (with spiders). These pairs of cages will be set up at 4 distances (0, 1, and 2 meters apart) and pairs at each distance will be replicated 5 times for a total of 40 cages. If alterations in grasshopper body chemistry is found, this response could be a previously unknown, potentially important way that grasshoppers alter how ecosystems function.

Scholar Citizen eportfolio Showcase

Please join the Scholar-Citizen faculty and students for an interactive ePortfolio showcase. The Scholar-Citizen ePortfolio showcase features the work of 17 Scholar-Citizen graduation candidates as well as the projects of Scholar-Citizen in Action Award recipients. During this hour-long session, students will present and discuss with small groups of faculty and students the impact of their Scholar-Citizen projects and courses. Audience members are encouraged to engage our Scholar-Citizens in dialogue and to provide feedback as these students add to their academic resumes, consider the connection between their current work and future goals, and practice speaking in a professional context about the value and meaning of their academic work. *Light refreshments will be provided.*

Thursday, April 21st Heth 043 4:00 pm-5:00 pm

Meg Bowers
Kaitlyn Carr
Zachariah Cole
Marinna Dowdy
Laura Giesen
Jesse Harden
Bert Herald
Olivia Thompson
Jacob Vaught
Amanda Herrmann
Courtney Hurley
Beakal Mekonnen
Clarissa Morrill
Emily Poff
Katharyn Self
Blake Sholes
Kaitlyn Toibin
Dominique Fields

Accelerated Research Opportunities Symposium

As an undergraduate student, I have been so fortunate to join in an amazing experience called "Accelerated Research Opportunities" (ARO). "ARO is a program offered at Radford University that provides select freshman with the opportunity to immediately be exposed to, prepare for, and actively engage in research." In the beginning of the semester, we were a hodge-podge of students; we had different interests, different reasons for researching, and even different ARO recruitment stories. However, the things that we did appear to have in common were our drive and ambition. As the year progressed, we were able to grow as researchers, students, and even as a team. Over these few, short months, the ARO class of 2015 has had some incredible adventures. Besides having an amazing retreat experience at Selu Conservancy, we have sent two researchers to Barrow, Alaska, and over the summer we are sending a student to Taiwan and another to the Virgin Islands. One researcher is even in the process of creating his own company based on an app! We have 14 poster presentations from the 2015 class and 2 from the 2014 class. I hope you enjoy this wide range of projects as much as we have! We have all worked tremendously hard over these past few months and hopefully it shows.

Jessica Mundy
Class of 2019

"If at first you don't succeed, search, search again. That's why it's called research."

Accelerated Research Opportunities Symposium

An Analysis of the Effect of Shape on Fluvial Transport of Articulated Units

Samantha Rubush

Faculty Mentor(s): Cliff Boyd Anthropological Sciences
Thursday, April 21st Heth 043 5:45 pm-6:00 pm

Fluvial systems, or rivers, have proven to complicate the understanding and determination of taphonomic processes that occur on human remains. Understanding different taphonomic processes, what they look like and how they occur, are crucial in the field of Forensic Archaeology; scientists' understanding of fluvial transport processes and pathways is still in its infancy. When human remains enter fluvial systems, the likelihood of discovering remains may decrease due to their transport potential. The shape of articulated units contributes heavily to their transport potential. Generally, when articulated units move through a fluvial system, they often adopt long axis orientations that are either parallel or perpendicular to the direction of flow (Coard and Dennell 1995). However, when the articulated unit comes in contact with debris or the bed of the river, the shape in which the unit is moving is altered, or the unit becomes trapped in that location, affecting the rate at which it moves through the water. This research project focuses on determining the rate and speed that articulated units travel through a fluvial system when they become altered by various elements. Observations of how fast differently shaped articulated units travel through fluvial systems and analysis of why these shapes affect transport potential is an important topic in forensic taphonomy. The ultimate objective of this project is to further our understanding of shape as a factor in determining fluvial transport and the taphonomic process of fluvial transport as a whole.

Meet Ohmy

Katie Mankowski **Nolan McGrady** **Nicholas Schrecongost**
Abdullah Zulfiqar

Faculty Mentor(s): Rhett Herman Physics
Thursday, April 21st Heth 043 6:00 pm-6:15 pm

The OhmMapper is a device that has the unique ability to generate an image of the sea ice through readings obtained at the surface. This image is based on the very different electrical properties of the ice and the underlying seawater. We will discuss how these properties are used by the OhmMapper to generate these images.

Accelerated Research Opportunities Symposium

Ground Penetrating Radar—What Lies Beneath

Logan Fisher **Jordan Eagle**
Faculty Mentor(s): Rhett Herman Physics
Thursday, April 21st Heth 043 6:15 pm-6:30 pm

A ground penetrating radar unit was used to surprising success on the sea ice. One of the antenna frequencies was able to determine both the depth to the bottom of the ice as well as the differences in composition of the ice at different depths. We will also discuss a difference in the signal that we found when venturing far out onto the ice, a difference that may indicate horizontal differences in the ice.

Books, Patriarchal Agency, and the (In)visible Body of the Princess: A Medieval Context for Sleeping Beauty as a Powerless Possession

Rachel Lewis
Faculty Mentor(s): Carlee Bradbury Art
Thursday, April 21st Heth 043 6:30 pm-7:30 pm

Disney's Sleeping Beauty introduces audiences to the story by use of a hardbound book. The heavily-decorated book is visually similar to medieval books of hours, which were prayer books given to young brides upon marriage. They served as moral guidebooks and included images of the Virgin Mary, a religious figure whom girls of the time idolized and strived to emulate, much in the same way a teenager today might idolize their favorite movie star. In the middle ages, royal brides were typically wed as children and were used as a way of fostering good relations between countries. When comparing real-life medieval princesses to the fictional Aurora (who spends a startling portion of the film unconscious), it is clear to see the female body being used as a tool to improve the lives of the men around them. This study examines the role of patriarchy in both real life princesses and fictional Disney princesses, and the ways in which it has denied them their self-sovereignty. Young girls today are surrounded by this "princess culture" from a very early age, so this study also examines whether the near constant absorption of the gender roles observed within Disney's Sleeping Beauty and others have an effect on their romantic relationships as they mature. In addition, the study will tie in the notion of technology as a vessel for delivering these gender roles to young girls, both in modern society and in the Middle Ages. Information on the psychological consequences of constant exposure to princess culture was discovered through the analysis of multiple articles pertaining to the roots of patriarchal societies, the rise of feminism and what it means, and the ways in which Disney still has to grow in order to accommodate the demands of its increasingly socially-aware consumer base.

Accelerated Research Opportunities Symposium

Positive Piano

Benjamin Marshall

Thursday, April 21st Heth 043 6:30 pm-7:30 pm

POSITIVE PIANO Positive Piano is a new electronic way for beginners to learn how to play the piano. By reading from a MIDI file, a song is constructed from the information, and put onto a track where notes "fall down" in a style similar to the popular game, Guitar Hero. By connecting a MIDI-enabled keyboard to a computer or laptop, you can play along with these notes through a few different modes. Watch: This is a mode where you can simply watch the notes fall, and listen to how the song is supposed to sound. Through pausing and search features, this mode can be a good place to learn exactly what a certain part should sound like, and to figure out some tough rhythms. Practice: This mode is the bread and butter of the program, the notes will fall, and when they are supposed to be played, the song will pause until you play the correct notes. This mode is great for playing along with the song and learning the notes and finger positioning. Test: This mode is designed mainly for the lesson set, where the song will play without pausing and you are expected to play along. At the end you will be graded, and in the lesson set, a passing score will allow you to advance to the next lesson. Through these three modes, there is a full suite of practice and learning potential. Beginners can follow along through the lesson set, learning about everything from finger placement and basic scales, to more advanced techniques such as arpeggios. After the lesson set is complete, a whole new area is ready to be explored. Because any MIDI file is compatible with this program, you can download a MIDI of your favorite song and learn to play it with the same modes. Further than that, you can record and annotate your own MIDI files, to share with friends or anyone online.

Analysis of E. coli Beta-Glucuronidase

Mckenzie Hunt
Andrew Milauskas

Faculty Mentor(s): Kimberly Lane Chemistry
Thursday, April 21st Heth 043 6:30 pm-7:30 pm

The effects of E. coli beta-glucuronidase on the chemotherapy pro-drug CPT-11 can result in extremely harmful side effects. Once in the body, CPT-11 is metabolized into the active form of the drug, SN-38 (an inhibitor of topoisomerase I). The glucuronidation of SN-38 to SN-38G occurs in the liver so that the otherwise toxic drug can be marked for excretion. The bacterial beta-glucuronidase strips the glucuronide off of SN-38G and results in the drug's toxic effects. The interaction between beta-glucuronidase and SN-38G can be blocked by using the inhibitor Z-77. E. coli beta-glucuronidase contains a bacterial loop not found in the human form of the enzyme. Z-77 has been found to be selective for binding to the bacterial loop, therefore, not affecting the human form of the enzyme. To study the essential function of the bacterial loop of E. coli beta-glucuronidase, our laboratory is developing a variety of mutations targeting specific amino acids in this loop. Our work examines the wild-type E. coli beta-glucuronidase for comparison to future mutations with respect to the Z-77 inhibitor.

Accelerated Research Opportunities Symposium

Developing Student Skills for Career Advancement Modeled Through a Flipped General Chemistry Class

Jessica Mundy
Matti Hamed

Faculty Mentor(s):	Joseph Wirgau	Chemistry
Thursday, April 21st	Heth 043	6:30 pm-7:30 pm

It has been shown that as of today, we are sending too many students out into the community who are ill-prepared for their desired career. Employer surveys indicate that while many of the college graduates have broad content knowledge that relate to their major and associated job field, broad content knowledge alone proves unsubstantial for career advancement. Employers are increasingly placing emphasis on soft skills that college graduates are lacking. These soft skills include critical thinking, time management, and accountability. How do we effectively use class time to build skills for the 21st century work force? The "flipped" model class provides lecture via video for the student to watch at home prior to the next class. The student then comes to class with what would normally be considered homework and then practice in the classroom with the professor and peers, which typically occurs outside of class. This type of active learning not only maximizes student to faculty interactions but also peer to peer interactions. This research will consist of a traditional Chemistry 101 class as the control group and a Flipped Chemistry 101 class as the experimental group. We have analyzed self-assessment data, as well as content knowledge and test scores. The collection of data from control and experimental sections with the same instructor provides a rare opportunity to examine the impact of teaching methods without the variations of different instructors. The outcomes will presented and discussed.

Implementing Flipped Classroom as a Form of Student Center Learning to Improve Student Attitude Towards STEM Fields

Keidi Freeman
Matti Hamed

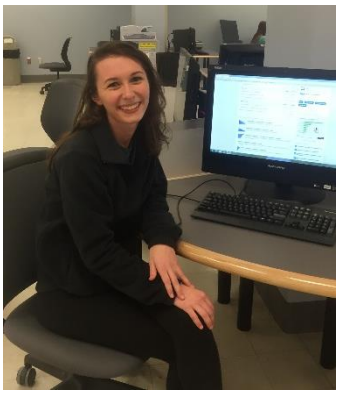
Faculty Mentor(s):	Joseph Wirgau	Chemistry
Thursday, April 21st	Heth 043	6:30 pm-7:30 pm

The goal of our research is to incorporate an active learning environment into the classroom like found in laboratory sessions and many other non-STEM introductory classes. An effective learning environment can potentially be enhanced through the use of technology and engagement of students through activities. This could then result in increased retention, improved attitudes toward STEM classes and learning techniques, helping to offset the declining number of STEM majors. Our research looks at a traditional classroom, which is the control group, versus a flipped classroom, which is the experimental group, to see if students' success is impacted by a flipped classroom approach. The flipped Chemistry 101 section delivered content primary through video content outside of class. In the flipped classroom students were engaged in activities and applied work. Pre and post data was collected on content mastery and student impressions. We found that in the short term, content mastery between the traditional and flipped classroom was the same. The analysis of data collected from this fall will be presented and discussed.

Accelerated Research Opportunities Symposium

Clinical Implications for Consideration of Newly Developed Treatment Apps for Auditory Processing Disorder (APD)

Maggie Frye
Emily Newcomb
Faculty Mentor(s): Lauren Flora Communication Sciences and Disorders
Thursday, April 21st Heth 043 6:30 pm-7:30 pm



Smartphone devices are embraced for their convenience and customizability. According to the latest trend data from the Pew Research Center's Internet and American Life Project survey (2013), 91% of American adults (18 years and older) have a cell phone. Additionally, 63% use the device for Internet access and 34% of those same individuals use their phones as their primary means of going online (Becker, Miron-Shatz, Schumacher, Krocza, Diamantidis, & Albrecht, 2014). With regards to health-related information, supposed superfluous activities, such as medical follow-ups related to health concerns, are often foregone for online symptom checkers and diagnoses as well as therapeutic activities. With a rapidly growing mobile health (mHealth) market, all stakeholders (developers, professionals in various health-related fields, and consumers) have embraced mHealth with the high hopes and expectations that it will provide more a effective, interactive means of managing chronic health conditions, expanding provision of services to underserved populations, and promoting self-advocacy by encouraging positive health management behaviors (Becker et al., 2014, Free et al., 2010). The profession of audiology is not immune to this trend, especially with regard to app development addressing therapeutic interventions for auditory processing disorders (APD). However, as mHealth is a new and growing trend in the field of audiology, very little research has been done investigating the effects these apps have on remediating the effects of APD for the short and long term. Yet, the number of apps available for download is steadily on the rise. Data regarding therapeutic accuracy or effectiveness is not corroborated prior to becoming available for download (Franko, 2013) nor is it required to be published on developers' websites. This proves problematic for the professional who wishes to implement the use of one or more of these apps in the management of their client. Ideally, these professionals would critically review developers' websites for resources that include empirical research indicating efficacy of their respective apps prior to "prescribing" the apps as a therapeutic management tool. Nonetheless, clinicians may forego this review process due to the time intensive demands of sifting through the sheer number of available apps and perusing individual websites for any necessary data. The purpose of this tutorial is to apprise the consumer about the types of data available.

Survey of Small Asian Mongoose After Intensive Removal Efforts: Demographic and Diet Effects in St. John

Kellie McDowell
Faculty Mentor(s): Karen Powers Biology
Thursday, April 21st Heth 043 6:30 pm-7:30 pm

Previous mongoose trapping conducted in the US Virgin Islands on St. John since 2008 has indicated a population dominated by young males. However, over the past year, there has been intensive trapping and removal of this invasive species which may have changed the demographics (age structure and sex ratios). In May 2016, Tomahawk traps will be used to survey mongoose along the southern portion of St. John. The individual's age will be determined by the wear of their teeth. In addition a hair sample will be collected and primary diets will be determined using stable isotope analysis (carbon-13 and nitrogen-15). The results will be graphed to determine if the mongoose diets varied based on location on the island. This analysis can determine if differences in diet are due to age, sex, or geographic location on the island.

Accelerated Research Opportunities Symposium

Effectiveness of Batterer Intervention Programs in Virginia

Olivia Adams

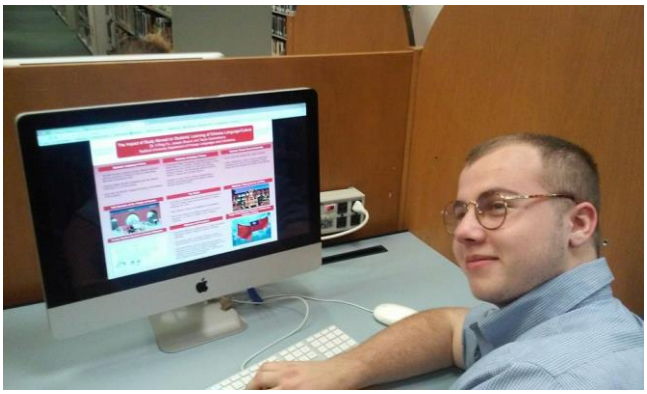
Faculty Mentor(s): Margaret Pate Criminal Justice
Thursday, April 21st Heth 043 6:30 pm-7:30 pm

Across the United States, individuals are being ordered by courts to attend batterer intervention programs (BIPs). The purpose of such programs is to hold batterers accountable and reduce the likelihood of reoccurring battery while fulfilling the requests of victims not to punish their batterers with jail time. Researchers have studied the effectiveness of such programs and many have found mixed results. However, little has been done to look at the individuals within the programs and their experiences with the programs. For a future research project, we will work with local BIP providers to collect data from offender files and through interviews with offenders to assess how individual perceptions of BIPs vary. Results from this project can be used by the Virginia BIP Certification Board, and local providers, as support for recommendations to program and policy changes. In order to conduct this future research study, we are currently seeking external funding and working closely with the Sponsored Programs and Grants Management office. This semester we have searched for grants, selecting ones that fit our criteria best. We are also currently working on writing the grant proposal. By the end of the semester we plan to submit a grant to an external organization, such as the National Institute of Justice.

The Impact of Study Abroad on Students' Learning of Chinese Language and Culture

Joseph Shaver
Taylor Quesenberry

Faculty Mentor(s): I-Ping Fu Foreign Languages and Literatures
Thursday, April 21st Heth 043 6:30 pm-7:30 pm



Study abroad programs to countries outside of Europe are on the rise, and almost always benefit the students participating. Despite this, as well as the growing popularity of Mandarin Chinese, there has been relatively little research done into how the experiences of those students who choose to travel to China or Taiwan effect their retention and learning of both the language and the culture. Our goal is to address this gap of information. This Semester we have delved into reviewing what other researchers have found when assessing the impact of study abroad programs, analyzing their results, and focusing on how exactly we will be measuring the students' retention as well as identifying the key variables for the development of testing instruments. The team has also been reviewing over the development of similar study abroad programs, and what underlying principles are at play with determining their effectiveness. The results of the instrument development and literature review will be presented, as well as future plans to further investigate the impact of study abroad programs on Radford University students learning Chinese.

Accelerated Research Opportunities Symposium

Adolescent Cannabinoid Exposure and Novelty-Seeking Phenotype: Food Intake, Anxiety, and Activity in Adult Female Rats.

Elizabeth Daidone
Nora Puryear
Ashley Rigdon

Faculty Mentor(s):	Pamela Jackson	Psychology
Thursday, April 21st	Heth 043	6:30 pm-7:30 pm

Cannabinoids have been shown to cause long-term changes when administered to adolescent rats, but the specific changes vary from study to study (e.g., Schneider, Schömig, & Leweke, 2008; Abush & Akirav, 2012). Because of this variability, the current study focused on factors that might interact with marijuana in developing animals. We examined how early novelty-seeking behavior, estrous cycle and cannabinoids affect activity and anxiety in adult female rats. Before drug exposure, all rats were classified into different phenotypes: high, moderate, or low responder. Cannabinoids have also been shown to negatively affect food intake and body weight in rats (Miller & Drew, 1974). Because malnutrition during adolescence can have a negative impact on development it is important to understand its impact on activity and anxiety in adulthood. In order to test this a second control group was used that received the same amount of food that drug animals consumed to account for the decreased food intake in drug animals. All animals were tested as adults for activity and anxiety in an open field to assess the long term effects of adolescent cannabinoid exposure. All subjects used were female Long-Evans rats, and were examined for estrous phase before data collection in order to understand estrous influences on activity and anxiety. Preliminary results suggested that drug animals decreased food intake and body weight gain. There was a significant interaction effect between drug exposure and phenotype in activity. Preliminary analyses also revealed that high-responder animals were less anxious than low-responders.

The Presence and Relative Density of Violets in Grasslands at the Radford Army Ammunition Plant

Marnesha Jones

Faculty Mentor(s):	Karen Powers	Biology
Thursday, April 21st	Heth 043	6:30 pm-7:30 pm

Speyeria idalia, the regal fritillary, is a federally-endangered butterfly species, having suffered population declines in recent years. A grassland specialist, this butterfly only lays its eggs on herbaceous vegetation in the violet genus (Viola). Remaining populations are known from Mississippi, Illinois, Ohio, and Virginia. Locally, individuals have been sighted at the Radford Army Ammunition Plant's (RFAAP) New River Unit (Dublin, VA), in the past decade. Even though populations were found here in the past, they've not been documented on the New River Unit for a few years. Knowing that violets are this species' host plant, we want to document presence and relative density of violets in grasslands at the RFAAP. In April and May, 2016, we intend to survey for these herbaceous plants using belt transects across grassland tracts, walking linear patterns of 100m or more and documenting violets within 1m on either side of our walking path. After documenting violet presence and relative abundance, we will revisit locations with violets in the early summer to document the presence or absence of regal fritillary caterpillars. These plant and caterpillar surveys will determine if the species is still breeding on-site, and thus, whether or not the fritillary has a chance at long-term survival on the property.

Accelerated Research Opportunities Symposium

The role of AS1 and AS2 in regulating gene expression during plant development.

Bala Kadariya

Faculty Mentor(s):	Tara Phelps-Durr	Biology
Thursday, April 21st	Heth 043	6:30 pm-7:30 pm

When plants and animals are in a developmental phase, undifferentiated cells are instructed to become of the various cells in the organism. As cells become differentiated they become less negotiable in what type of cell they can become as plants become mature. In animals, once cells are differentiated the genes responsible for differentiation are permanently repressed and cells cannot dedifferentiate and reinitiate development. In plants, differentiated cells can be dedifferentiated and redifferentiated suggesting that the genes regulating cellular differentiation are not permanently repressed in plants. Some of the genes associated with cells shifting from an undifferentiated cell to a differentiated cell fate are found in both plants and animals, suggesting that cell differentiation is evolutionarily conserved. In Arabidopsis thaliana, the genes ASYMMETRIC LEAVES1 and 2 (AS1 and 2), encode transcription factors, which control how genes are expressed during leaf development. Normal plant leaves only contain differentiated cells, but when AS1 and AS2 genes are mutated, undifferentiated cells are also present in the plant leaves resulting in lack of leaf development in plants. The exact method of how AS1 and AS2 control gene expression and regulate cellular differentiation is unknown, however, AS1 and AS2 negatively regulate the KNOX genes, a group of genes required to maintain an undifferentiated cell state. It is also known that AS1 and AS2 proteins physically interact to regulate KNOX gene expression, but the exact location where they make contact has not been determined. The goal of this study is to distinguish the structure of AS1 and AS2 and better understand how these proteins regulate gene expression during plant development.

Superwomen: Is it Cold In That Refrigerator?- The Evolution of the Depiction of Female Characters within Superhero Narratives

Shannon Knuston **Adrianne Reeder**
Anna Nicholas **Heidi Warner**
Hope Crawford **Kaitlyn Fisher**

Faculty Mentor(s):	Scott McDarmont	CORE
Thursday, April 21st	Heth 043	6:30 pm-7:30 pm

Women make up a growing demographic among consumers of superhero comics and their related media with some estimating that women make up nearly half the readership of all comics. With research indicating that such media can have a profound affect how young women perceive both themselves and the role of women in general, it is all the more important that they are exposed to positive representations of femininity. Unfortunately, the comic book industry doesn't have the best history when it comes to progressive representations of its female characters; they are alternately over-sexualized and victimized (as highlighted in the ongoing 'Women in Refrigerators' project). This project seeks to trace the history of these depictions as well as look to more positive developments in recent years and how these latter developments should serve as a guideline for the future of how these 'Superwomen' are depicted in comics and their related media.

Student Choreography Showcase

Monday, April 25 – Tuesday, April 26 at 7:30 p.m.
Albig Studio Theatre, Peters Hall B112

An evening of exploratory dance, Student Choreography Showcase highlights the voices of emerging choreographers enrolled in the Department of Dance's Choreographic Studies II class.

Student Choreography Showcase

Amy Livesay
Faculty Mentor(s): Deborah McLaughlin Dance
Monday & Tuesday Albig Studio Theatre, Peters Hall B112 7:30 PM

My choreography overall is meant to be direct. Every movement, gesture or detail has a purpose, meaning, and place in telling the underlying story for those watching. My group piece, Deciding Factor, utilizes a quote; "you are not a product of your circumstances, you are a product of your decisions" that informs the work. The music is not influencing the five dancers, but rather giving them sound to work through their conceptual exploration of the poetic phrase. My solo, Not Forgotten, explores the constant struggle between memories of the good times and bad. This piece primarily explores the emotions from losing a close friend in a car accident the winter of my sophomore year of high school. My main focus for this piece is to challenge myself expressively through the choreography and to be vulnerable in connecting with the audience on a universal level. Paying attention to the details like a hand gesture or facial expression is important for me because this piece is deeply emotional.

Behind the Smile

Kaitlin Tormey
Faculty Mentor(s): Deborah McLaughlin Dance
Monday & Tuesday Albig Studio Theatre, Peters Hall B112 7:30 PM

A choreographer chooses what to show, but the audience chooses what to see. My choreography reflects my own experience, knowledge, and emotions. The focus of my creative work is usually the issues in society and the individual as well as the deeper, darker, and more serious human emotions. According to psychologist Johann Herbart, the mind is a battleground. Behind the Smile focuses on this battleground and the pain and struggle hidden behind the smile we wear when others are around. In Behind the Smile, I chose a jacket to symbolize the part of us that we show to others. I also explored how detailed movement of the hand and gestures could be used to help portray the conflict.

Student Choreography Showcase

Hollis Bourne-Frye
Faculty Mentor(s): Deborah McLaughlin Dance
Monday & Tuesday Albig Studio Theatre, Peters Hall B112 7:30 PM

My choreographic process as an artist undergoes a complex power-struggle between heart and mind. It can take many different twists and turns throughout the creation phase that then develops into a vivid waterfall effect of storytelling. When first exploring where I want a piece to go I start with an idea and allow it to then take its form. Next I add a dash of detail and a sprinkle of rhythmic accompaniment to help elaborate the message I'm trying to get across for each particular piece. As each artist knows, once you allow the piece to take shape (either on yourself or your dancers) it then has a mind of its own that can expand into brilliance or collapse into disarray. When this happens, the choreographer must help the piece to find where it belongs again and provide guidance to getting back on its feet through use of various visual aids (such as lighting, costuming, sound design, etc.). I also find that every piece I've created starts in their own way, which brings an energy to the artistic process as if each piece is then born or created. The choreography behind my solo piece, I am..., is to express my pain and growth of developing as a mixed race citizen in our society. The props used within the piece express the negative stereotypes that come with being seen as one race OR the other, whereas I view and wish for others to see myself as I am. I found the process to be a little more difficult when dealing with choreographing the group piece, Diverse Ideologies: Logical, Mechanical, & Emotional. This has to do with its complexly articulate use of details through the use of individual rhythmic coordination among each dancer depicting different mechanisms that define the insides of a machine. They also represent the general structure of human anatomy and how certain movements effect the body. In relation to this concept, I am also comparing and contrasting three vastly different ideologies to find unity between them. The piece overall reflects how my thought process has evolved over the course of my four years at Radford University exploring a diverse range of conceptual ideas and bringing them together.

Student Choreography Showcase

Alexa Dunks
Faculty Mentor(s): Deborah McLaughlin Dance
Monday & Tuesday Albig Studio Theatre, Peters Hall B112 7:30 PM

My choreography was built from personal experiences and observations that I have witnessed. When choreographing, I usually base my dances off of true stories that the audience can relate to. In this performance, I wanted to relate my choreography to my family because they are the reason I am so driven to succeed. I will be presenting two group pieces that focus on utilizing dynamics as well as playing with emotions. Road to Recovery is a dark piece that informs the audience about the seriousness of addiction. Throughout this dance, the movement tells a story about the process of recovery. Esperanza contains intricate movement, partner work, and juxtapositions of extreme tempo changes. The sound score of this piece includes a poem written by the recovering addict. My work also includes an autobiographical solo, The Blind Spot, focusing on personal issues that one of my family members and I share. Through the movement, I hope the audience will be able to relate to the pieces and be moved in an emotional way.

Title: Post-traumatic Growth in Breast Cancer Survivors: Does Type of Support Matter?
Session: Center for Gender Studies Poster Session
Day & Time: Tuesday, April 19th 5:15 pm-6:15 pm
Location: Heth 022

Lesure, Lindsay
Title: Role of F365 in inhibitor binding by Escherichia coli beta-glucuronidase
Session: Scientific Oral Presentation
Day & Time: Wednesday, April 20th 4:00 pm-4:15 pm
Location: Center for the Sciences M073

Lewis, Tayler
Title: Computational Modeling of AS1 and AS2 Proteins
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Lewis, Samantha
Title: The Effect of Rape Myth Acceptance on Gender Composition in the Judgement of Rape Scenarios
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Lewis, Rachel
Title: Books, Patriarchal Agency, and the (In)visible Body of the Princess: A Medieval Context for Sleeping Beauty as a Powerless Possession
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Lingg, Ryan
Title: Coadministration of Alcohol and Nicotine Alters Cell Proliferation in the Hippocampus of Adolescent Rats
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Livesay, Amy
Title: Student Choreography Showcase
Session: Student Choreography Showcase
Day & Time: Tuesday, April 26th 0.8125
Location: Peters B112

Long, Erin
Title: Does Caffeine Improve Learning and Memory while Drinking Alcohol?
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Lopez, Olivia
Title: Role Overload as a Mediator in Relationship to Organizational Citizenship Behavior to Work Family Conflict
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Love, D'Avianna
Title: Unnamed Genes 30, 31 and 32 and Their Possible Functions
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Majette, Miranda
Title: Green Infrastructure Planning for the City of Radford
Session: Scientific Oral Presentation
Day & Time: Wednesday, April 20th 4:45 pm-5:00 pm
Location: Center for the Sciences M073

Mallery, Amber
Title: Sexual Health and Values
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Mankowski, Katie
Title: How to Get More Out of Your Sled
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 6:50 pm-7:10 pm
Location: Center for the Sciences M 037

Mankowski, Katie
Title: Meet Ohmy
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 7:10 pm-7:30 pm
Location: Center for the Sciences M 037

Mann, Danayer
Title: Testing Pluralistic Ignorance Using Radford University Students' Drinking Habits
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Mark-Okai, Bianca
Title: Trust in Management as a Mediator of the Relationship between Supervisor Support and Intention to Quit
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Marks, Amanda
Title: Knowledge of Autism Spectrum Disorder
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Marshall, Benjamin
Title: Positive Piano
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Martin, David
Title: Cloud Computing Demands Security Advancements
Session: Information Technology Oral Presentations
Day & Time: Wednesday, April 20th 4:20 pm-4:40 pm
Location: Heth 016

Matinez, Jesus
Title: Does Caffeine Improve Learning and Memory while Drinking Alcohol?
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Mattson, Monika
Title: A Comparison of Fish Species Richness and Composition Among Different Marine Substrates Along the Coast of St. John, U.S. Virgin Islands
Session: Biology Oral Presentations
Day & Time: Tuesday, April 19th 5:15 pm-5:30 pm
Location: Center for the Sciences M073

McClintock, Jenna

Title: Using Evidence-Based Practices to Improve Batterer Intervention Programs: A Report From Student Field Research Experience
Session: Interdisciplinary Oral Presenations
Day & Time: Wednesday, April 20th 5:00 pm-5:20 pm
Location: Heth 016

McClintock, Jenna
Title: The Impact of Substance Use on College Student Success and Welfare
Session: Interdisciplinary Oral Presenations
Day & Time: Thursday, April 21st 5:00 pm-5:20 pm
Location: Heth 022

McDowell, Kellie
Title: Survey of Small Asian Mongoose After Intensive Removal Efforts: Demographic and Diet Effects in St. John
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

McDowney, Adrianna
Title: Genome Annotation of a 3058 Base-Pair Segment of the Thermoplasma volcanium Genome
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

McGrady, Nolan
Title: Meet Ohmy
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 7:10 pm-7:30 pm
Location: Center for the Sciences M 037

McGregor, Cari
Title: A Comparison of Fish Species Richness and Composition Among Different Marine Substrates Along the Coast of St. John, U.S. Virgin Islands
Session: Biology Oral Presentations
Day & Time: Tuesday, April 19th 5:15 pm-5:30 pm
Location: Center for the Sciences M073

McKee, Asa
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

McNeilly, Kayla
Title: A Comparison of Fish Species Richness and Composition Among Different Marine Substrates Along the Coast of St. John, U.S. Virgin Islands
Session: Biology Oral Presentations
Day & Time: Tuesday, April 19th 5:15 pm-5:30 pm
Location: Center for the Sciences M073

McNeilly, Kayla
Title: Estimating Ingestible Size From Native Mammal Prey Species
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Meadows, Andrew
Title: Undergraduate Knowledge of Autism Spectrum Disorder
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Mekonnen, Beakal
Title: ePortfolio
Session: Scholar Citizen ePortfolio Showcase
Day & Time: Thursday, April 21st 4:00 pm-5:00 pm
Location: Heth 043

Mendoza, Alex
Title: The effects of PNF Stretching on Vertical Jump: Literature Review
Session: Health and Human Performance Poster Session II
Day & Time: Wednesday, April 20th 4:30 pm-5:30 pm
Location: Heth 014

Mends, Daniel
Title: Synthesis of Derivatives of Phenazine-1-carboxylic Acid for Use in Antiviral Assays
Session: Chemistry Poster Session
Day & Time: Wednesday, April 20th 5:30 pm-7:00 pm
Location: Center for the Sciences Mainstreet Lobby

Michael, Barrett
Title: Examination of Three Potential Genes in Thermoplasma volvanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Milam, Madeline
Title: Undergraduate Knowledge of ADHD: Levels of Understanding
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Milani, Fiona
Title: Floyd County Place-Based Education Oral History Project, "Roots With Wings".
Session: Graduate Studies Oral Presentations
Day & Time: Tuesday, April 19th 4:00 pm-4:20 pm
Location: Heth 014

Milauskas, Andrew
Title: Analysis of E. coli Beta-Glucuronidase
Session: Chemistry Poster Session
Day & Time: Wednesday, April 20th 5:30 pm-7:00 pm
Location: Center for the Sciences Mainstreet Lobby

Milauskas, Andrew
Title: Analysis of E. coli Beta-Glucuronidase
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Miles, Alex
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Miller, Kenzie
Title: Annotation of Three Potential Protein Coding Region of the Thermoplasma volcanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Miller, Rebecca

Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Mittelman, Abigail
Title: Gender Bias in the Hiring Process
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Mogen, Sam
Title: Drilling for Polar Bears
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 7:50 pm-8:10 pm
Location: Center for the Sciences M 037

Mogen, Sam
Title: What we Learned at the (Arctic) Beach
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 8:10 pm-8:30 pm
Location: Center for the Sciences M 037

Mohamed, Attia
Title: Effects of Vespa Amino Acid Mixture on Cellular Metabolism
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Morabito, David
Title: Does Owning a Dog Correlate with Low Immunological Impacts of Stress for College Students?
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Morgan, Tommy
Title: Public Relations and Philanthropy: An Autoethnography
Session: Honors Academy Poster Session
Day & Time: Tuesday, April 19th 4:00 pm-5:00 pm
Location: Heth 043

Morrill, Clarissa
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Morrill, Clarissa
Title: ePortfolio
Session: Scholar Citizen ePortfolio Showcase
Day & Time: Thursday, April 21st 4:00 pm-5:00 pm
Location: Heth 043

Morris, Josh
Title: Friends of Claytor Lake
Session: Scientific Oral Presentation
Day & Time: Wednesday, April 20th 5:00 pm-5:15 pm
Location: Center for the Sciences M073

Morrison, Daphne
Title: In Touch with Autism
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Moses, Sarah
Title: Senior Health and Wellness Faiir at Christiansburg Recreation Center
Session: Scholar Citizen Showcases
Day & Time: Thursday, April 21st 2:40 pm-3:00 pm
Location: Heth 043

Mundy, Jessica
Title: Developing Student Skills for Career Advancement Modeled Through a Flipped General Chemistry Class
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Neighbors, Jessica
Title: Autism Spectrum Disorder
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Neuf, Conrad
Title: Does Owning a Dog Correlate with Low Immunological Impacts of Stress for College Students?
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Newcomb, Emily
Title: Annotation of a 3.2 kb Region of the Thermoplasma volcanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Newcomb, Emily
Title: Clinical Implications for Consideration of Newly Developed Treatment Apps for Auditory Processing Disorder (APD)
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Newcome, Colin
Title: Autism Spectrum Disorder
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Nguyen, Anne
Title: Predictors of ADHD Knowledge in College Students
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Nicholas, Anna
Title: Superwomen: Is it Cold In That Refrigerator? The Evolution of the Depiction of Female Characters within Superhero Narratives
Session: Graduate Studies Poster Session
Day & Time: Tuesday, April 19th 5:00 pm-6:00 pm
Location: Heth 014

Nicholas, Otis
Title: Impact of Land Use/Land Change on Water Quality in the Middle James River Watershed
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Title: Examining the Effects of Bacteriocins on Bacterial Metabolism of Arsenic in the Environment
Session: Biology Oral Presentations
Day & Time: Tuesday, April 19th 4:00 pm-4:15 pm
Location: Center for the Sciences M073

Pirino, Nathan
Title: Computational Modeling of KNOX Gene Silencing By AS1 And AS2 In Arabidopsis Thaliana
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Podruchney, Brandon
Title: The Peak Creek Watershed
Session: Scientific Oral Presentation
Day & Time: Wednesday, April 20th 4:30 pm-4:45 pm
Location: Center for the Sciences M073

Poff, Emily
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Poff, Emily
Title: Exploratory Study Examining Factors Involved in College Women's Intention to Parent
Session: Health and Human Performance Poster Session II
Day & Time: Wednesday, April 20th 4:30 pm-5:30 pm
Location: Heth 014

Poff, Emily
Title: ePortfolio
Session: Scholar Citizen ePortfolio Showcase
Day & Time: Thursday, April 21st 4:00 pm-5:00 pm
Location: Heth 043

Pointer, James
Title: Resiliency as a Moderator of the Relationship between Workaholism and Burnout
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Porter, Laurencia
Title: In Touch with Autism
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Potter, Matt
Title: Analysis of Loci 36, 37 and 38 From the Genome of the Bacterium Thermoplasma volcanium
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Potter, Matthew
Title: Determination of Malathion in Soil and Produce
Session: Chemistry Poster Session
Day & Time: Wednesday, April 20th 5:30 pm-7:00 pm
Location: Center for the Sciences Mainstreet Lobby

Title: Annotation of Three Potential Protein Coding Regions within a 4500 Base Pair Portion of the Thermoplasma volcanium Genome
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Pratt, Alexander
Title: Maize: Transformation of an American Staple
Session: Commodities and History Oral Presentations I
Day & Time: Tuesday, April 19th 2:15 pm-2:30 pm
Location: Heth 022

Pratt, Brian
Title: Does More Sleep Lead to Lower Immunological Stress Levels in College Students?
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Price, Stephen
Title: Analysis of Ecological Disturbance-Growth Relationships Using Tree-ring Width Chronologies of Eastern Hemlock in Southern West Virginia
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Pryde, Courtney
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Pull, Alyssa
Title: Illustrating Change: Turning the Page to Sustainable Living
Session: Honors Academy Oral Presentations I
Day & Time: Tuesday, April 19th 2:00 pm-2:15 pm
Location: Heth 043

Puryear, Nora
Title: Annotation of a 3.2 kb Region of the Thermoplasma volcanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Puryear, Nora
Title: Adolescent Cannabinoid Exposure and Novelty-Seeking Phenotype: Food Intake, Anxiety, and Activity in Adult Female Rats.
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Puryear, Nora
Title: Adolescent Cannabinoid Exposure and Novelty-Seeking Phenotype: Food Intake, Anxiety, and Activity in Adult Female Rats.
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Prater, Cody

Queener, Abbie

Title: Meet Ohmy
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 7:10 pm-7:30 pm
Location: Center for the Sciences M 037

Schweikhard, Sidney
Title: Analysis of Protein Coding Regions of the Genome of a Bacterium in the Genus Thermoplasma
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Seager, Katelynne
Title: Sport Participation and its Association with Alcohol Related Behavior
Session: Honors Academy Oral Presentations I
Day & Time: Tuesday, April 19th 3:45 pm-4:00 pm
Location: Heth 043

Seay, Katharyn
Title: Does Owning a Dog Correlate with Low Immunological Impacts of Stress for College Students?
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Self, Katharyn
Title: Who's More Stressed? A Comparison of Stress Levels Between Majors and Class Levels
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Self, Katharyn
Title: ePortfolio
Session: Scholar Citizen ePortfolio Showcase
Day & Time: Thursday, April 21st 4:00 pm-5:00 pm
Location: Heth 043

Sellers, Katherine
Title: Radford University Defined Dendrology
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Shaffer, Hannah
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Shanks, Octavia
Title: Trust in Management as a Mediator of the Relationship between Supervisor Support and Intention to Quit
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Shannon, Lindsey
Title: In Touch with Autism
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Shaver, Joseph
Title: The Impact of Study Abroad on Students' Learning of Chinese Language and Culture
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Sheets, Caleb
Title: Conflict Minerals from the Democratic Republic of the Congo: The Richest Country's Demand and the Poorest Country's Costs
Session: Commodities and History Oral Presentations I
Day & Time: Tuesday, April 19th 2:00 pm-2:15 pm
Location: Heth 022

Sheets, Spencer
Title: The Correlation of Knee Angles Upon Landing and ACL Injuries
Session: Health and Human Performance Poster Session II
Day & Time: Wednesday, April 20th 4:30 pm-5:30 pm
Location: Heth 014

Shelburne, Jake
Title: A Bioinformatic Analysis of Three Protein Coding Regions Form the Genome of Thermoplasma
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Shelburne, Jake
Title: Relationships between Baseline Corticosterone Levels, Parental Care, and Willingness to Take Risks in Male Eastern Bluebirds (Sialia Sialis)
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Sheng, Bowen
Title: Do Perceived Stress Levels Correlate with Salivary IgA Levels in College Students?
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Shoemaker, Katlin
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Sholes, Blake
Title: ePortfolio
Session: Scholar Citizen ePortfolio Showcase
Day & Time: Thursday, April 21st 4:00 pm-5:00 pm
Location: Heth 043

Shores, Bryan
Title: Self-Regulation in Dismissive-Attachment
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Short, Tanner
Title: Resiliency as a Moderator of the Relationship between Workaholism and Burnout
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Singh, Amrit

Title: Measuring the destruction of War with Supervised Classification using 30 meter resolution Landsat 8 Imagery
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Smallman, Laura
Title: Distinguishing Water Quality Differences in the Chesapeake Bay and the New River
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Smith, Kenneth
Title: Illustrating Change: Encouraging Inquiry into Alternative Energies
Session: Honors Academy Oral Presentations I
Day & Time: Tuesday, April 19th 2:15 pm-2:30 pm
Location: Heth 043

Smith, Amy
Title: Flipping the Praxis
Session: Honors Academy Oral Presentations I
Day & Time: Tuesday, April 19th 3:30 pm-3:45 pm
Location: Heth 043

Smith, Jordan
Title: Examination of Three Potential Genes in Thermoplasma volvanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Smith, Haley
Title: Gene Annotation in the Bacteria Thermoplasma volvanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Smith, Chris
Title: Calcium Oxalate in Petioles of Deciduous Leaves
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Smith, Anthony
Title: Making it in Chemistry: The Design and Construction of a Low Cost Dynamic TensiometerContact Angle Analyzer
Session: Chemistry Poster Session
Day & Time: Wednesday, April 20th 5:30 pm-7:00 pm
Location: Center for the Sciences Mainstreet Lobby

Smith, Sarah
Title: How People With Cerebral Palsy Respond to Power Wheelchair Soccer
Session: Health and Human Performance Poster Session II
Day & Time: Wednesday, April 20th 4:30 pm-5:30 pm
Location: Heth 014

Smith, Sarah
Title: Body Image and the Initiation of Sexual Intercourse in Adolescents
Session: Health and Human Performance Poster Session II
Day & Time: Wednesday, April 20th 4:30 pm-5:30 pm
Location: Heth 014

Smith, Brianna
Title: The Down Phase of a Lunge
Session: Health and Human Performance Poster Session II
Day & Time: Wednesday, April 20th 4:30 pm-5:30 pm
Location: Heth 014

Smith, Gabrielle
Title: Gender Bias in the Hiring Process
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Soltesz, Rudy
Title: Drilling for Polar Bears
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 7:50 pm-8:10 pm
Location: Center for the Sciences M 037

Spitzer, Andrew
Title: The Spread of Beer: How the Transportation Revolution Turned Beer into a National Commodity
Session: Commodities and History Oral Presentations II
Day & Time: Thursday, April 21st 1:15 pm-1:15 pm
Location: Heth 022

Stafford, Chelsie
Title: Workaholism as a Mediator of the Relationship between Organizational Commitment and Work-Family Conflict
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Stansak, Kendra
Title: Does the Combination of Caffeine and Alcohol Alter the Effects of Anxiety and Activity?
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Stansak, Kendra
Title: Does Caffeine Improve Learning and Memory while Drinking Alcohol?
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Stansak, Kendra
Title: Does Caffeine Increase Consumption of Alcohol?
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Stansak, Kendra
Title: Effects of Adolescent Cannabinoid Exposure on Hippocampal Neurogenesis in Female Rats
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Steffey, Emily
Title: Testing Pluralistic Ignorance Using Radford University Students' Drinking Habits
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Stepp, Samantha

Title: Analysis of Corticotropin-Releasing Factor in the Amygdala of Rats following Human Interaction During Adolescence
Session: Honors Academy Poster Session
Day & Time: Tuesday, April 19th 4:00 pm-5:00 pm
Location: Heth 043

Tingle, April
Title: The Effects of Handling on Immunological Stress in Adolescent Rats
Session: Psychology Oral Presentations
Day & Time: Thursday, April 21st 4:15 pm-4:30 pm
Location: Heth 022

Titus, Keifer
Title: Intraspecific Competition Among and Resource Exploitation by Anolis cristatellus in the Virgin Islands National Park St. John, US Virgin Islands
Session: Biology Oral Presentations
Day & Time: Tuesday, April 19th 4:30 pm-4:45 pm
Location: Center for the Sciences M073

Titus, Keifer
Title: Acoustic Monitoring for Bats During Fall Swarm at Harpers Ferry National Historical Park, Harpers Ferry, WV
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Toibin, Katie
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Toibin, Kaitlyn
Title: ePortfolio
Session: Scholar Citizen ePortfolio Showcase
Day & Time: Thursday, April 21st 4:00 pm-5:00 pm
Location: Heth 043

Tombs, Ross
Title: The Effects of All-Night Studying on Salivary Antibody Levels in College Students
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Tormey, Kailin
Title: Behind the Smile
Session: Student Choreography Showcase
Day & Time: Tuesday, April 26th 0.8125
Location: Peters B112

Torres, Tony
Title: Gene Annotation of the Bacterium Thermoplasma volcanium GSS1
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Travis, Rachel
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Truman, ET
Title: Green Infrastructure Planning for the City of Radford
Session: Scientific Oral Presentation
Day & Time: Wednesday, April 20th 4:45 pm-5:00 pm
Location: Center for the Sciences M073

Turk, Rachel
Title: Emphasis on Self-Care in APA-Accredited Counseling Psychology Doctoral Programs
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Turk, Rachel
Title: The Development of the Hookup Motivations and Participation Survey (HMPS)
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Turner, Anne
Title: Analysis of Three Potential Genes in the Bacteria Thermoplasma volvanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Tutwiler, Christine
Title: Synthesis of 1,2-Disubstituted Styrenyl Oxides for use in Regioselective Nucleophilic Openings. A New Route to 2-Aminoalcohols.
Session: Chemistry Poster Session
Day & Time: Wednesday, April 20th 5:30 pm-7:00 pm
Location: Center for the Sciences Mainstreet Lobby

Vales, Rolphine
Title: Floyd County Place-Based Education Oral History Project, "Roots With Wings".
Session: Graduate Studies Oral Presentations
Day & Time: Tuesday, April 19th 4:00 pm-4:20 pm
Location: Heth 014

VanDerwerker, Audra
Title: Nazi Concentration Camps: Tool for Terror
Session: Psychology Oral Presentations
Day & Time: Thursday, April 21st 4:00 pm-4:15 pm
Location: Heth 022

Vargas, Alexander
Title: Floral Industry in the Context of Commodities
Session: Commodities and History Oral Presentations I
Day & Time: Tuesday, April 19th 12:30 pm-12:45 pm
Location: Heth 022

Vattelana, Donavan
Title: Using Remote Sensing to Analyze Growth Trends of Ailanthus altissima in the New River Valley
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Vaught, Jacob
Title: Comparative Histology of the Oral Mucosa of Snakes
Session: Honors Academy Poster Session
Day & Time: Tuesday, April 19th 4:00 pm-5:00 pm
Location: Heth 043

Title: Do Perceived Stress Levels Correlate with Salivary IgA Levels in College Students?
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Vaught, Jacob
Title: ePortfolio
Session: Scholar Citizen ePortfolio Showcase
Day & Time: Thursday, April 21st 4:00 pm-5:00 pm
Location: Heth 043

Via, James
Title: Chocolate
Session: Commodities and History Oral Presentations I
Day & Time: Tuesday, April 19th 1:15 pm-1:30 pm
Location: Heth 022

Vipperman, Thomas
Title: Predictors of ADHD Knowledge in College Students
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Voll, Hans
Title: Discoveries at the Top of the World—an Overview
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 6:30 pm-6:50 pm
Location: Center for the Sciences M 037

Voll, Hans
Title: What we Learned at the (Arctic) Beach
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 8:10 pm-8:30 pm
Location: Center for the Sciences M 037

Waase, Javier
Title: The Involvement of Bacterial Arsenic Resistance Genes in the Concentration of Toxic Arsenic at the Brinton Mine
Session: Biology Oral Presentations
Day & Time: Tuesday, April 19th 5:30 pm-5:45 pm
Location: Center for the Sciences M073

Waase, Javier
Title: Does Caffeine Increase Consumption of Alcohol?
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Wagers, Dr. Shelly
Title: Internal Power®: Versus Relationship Violence
Session: Center for Gender Studies Symposium
Day & Time: Tuesday, April 19th 3:30 pm-4:30 pm
Location: Heth 022

Wagner, Lora
Title: Childhood Victimization, Poly-Victimization and Perceived Family Environment in Jail-Incarcerated Women
Session: Center for Gender Studies Oral Presentations
Day & Time: Tuesday, April 19th 4:30 pm-4:45 pm
Location: Heth 022

Walcott, Sydney
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Waleska, Samuel
Title: 20th Century Russian Steel Manufacturing and how it has Effected Eastern Europe until Present Day
Session: Commodities and History Oral Presentations II
Day & Time: Thursday, April 21st 2:15 pm-2:30 pm
Location: Heth 022

Walker, Kyle
Title: Communal Connectivity Study using GIS for The City of Radford
Session: Scientific Oral Presentation
Day & Time: Wednesday, April 20th 5:15 pm-5:30 pm
Location: Center for the Sciences M073

Walsh, Nicole
Title: Energy Expenditure In Power Wheelchair Soccer Athletes With Spinal Muscle Atrophy
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Ward, Alexis
Title: Does the Combination of Caffeine and Alcohol Alter the Effects of Anxiety and Activity?
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Warnder, Heidi
Title: Superwomen: Is it Cold In That Refrigerator? The Evolution of the Depiction of Female Characters within Superhero Narratives
Session: Graduate Studies Poster Session
Day & Time: Tuesday, April 19th 5:00 pm-6:00 pm
Location: Heth 014

Warner, Heidi
Title: Gender Bias in the Hiring Process
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Warner, Heidi
Title: Superwomen: Is it Cold In That Refrigerator?- The Evolution of the Depiction of Female Characters within Superhero Narratives
Session: Accelerated Research Opportunities Symposium
Day & Time: Thursday, April 21st 6:30 pm-7:30 pm
Location: Heth 043

Weaver, Austin
Title: The Impacts of the CITES Trade Ban on Ivory as a Commodity
Session: Commodities and History Oral Presentations II
Day & Time: Thursday, April 21st 2:00 pm-2:15 pm
Location: Heth 022

Webb, David
Title: Effects of Gasoline that Contains Ethanol on Small Engine Gaskets
Session: Chemistry Poster Session
Day & Time: Wednesday, April 20th 5:30 pm-7:00 pm
Location: Center for the Sciences Mainstreet Lobby

Weinberg, Jenna
Title: Primary Grade Students' Mathematics Learning: Money Talks? Money Teaches!
Session: Graduate Studies Oral Presentations
Day & Time: Tuesday, April 19th 3:40 pm-4:00 pm
Location: Heth 014

Weller, Rebecca

Title: Undergraduate Knowledge of Attention Deficit Hyperactivity Disorder
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Wenger, Cynthia
Title: Mindfulness and Social Media Use
Session: Honors Academy Poster Session
Day & Time: Tuesday, April 19th 4:00 pm-5:00 pm
Location: Heth 043

Whelan, Andrew
Title: The Impact of the North American Tobacco Trade upon the Global Economy: 1500-1900.
Session: Commodities and History Oral Presentations II
Day & Time: Thursday, April 21st 2:30 pm-2:45 pm
Location: Heth 022

Whitcraft, Haley
Title: Suicide in the United States: A Literature Review of Differences between Veteran and Civilian Adult Populations
Session: Graduate Studies Poster Session
Day & Time: Tuesday, April 19th 5:00 pm-6:00 pm
Location: Heth 014

Widner, Jenny
Title: Gene Annotation of Three Putative Protein Coding Regions From the Thermoplasma volcanium Genome.
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Wilber, Sarah
Title: Examining the Effects of Bacteriocins on Bacterial Metabolism of Arsenic in the Environment
Session: Biology Oral Presentations
Day & Time: Tuesday, April 19th 4:00 pm-4:15 pm
Location: Center for the Sciences M073

Wilcox, Leslie
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Wilkinson, Tasha
Title: Genome Analysis of 1,231 Base Pairs of the Thermoplasma Genome
Session: Biology Poster and ePortfolio Session II
Day & Time: Tuesday, April 19th 7:30 pm-8:30 pm
Location: Center for the Sciences Mainstreet Lobby

Willaford, Nathan
Title: Recovery Following Total Knee Arthroplasty: A Case Series
Session: Graduate Studies Poster Session
Day & Time: Tuesday, April 19th 5:00 pm-6:00 pm
Location: Heth 014

Williams, Natasha
Title: Annotation of Three Potential Protein Coding Region of the Thermoplasma volcanium
Session: Biology Poster and ePortfolio Session I
Day & Time: Tuesday, April 19th 6:15 pm-7:15 pm
Location: Center for the Sciences Mainstreet Lobby

Williams, Chelsea
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Williams, Eva
Title: HLTH 460 World Health Day Special Session: Protecting Yourself from Foodborne Illness
Session: Health and Human Performance Poster Session I
Day & Time: Wednesday, April 20th 3:00 pm-4:00 pm
Location: Heth 014

Williams, Passion
Title: Let's Talk About Sex: Looking at Differences in Cognitive Dissonance Between Introverted and Extroverted Individuals
Session: Psychology Poster Session I
Day & Time: Thursday, April 21st 3:00 pm-4:00 pm
Location: Heth 014

Wilson, Michael
Title: Model United Nations
Session: Interdisciplinary Oral Presenations
Day & Time: Thursday, April 21st 5:40 pm-6:00 pm
Location: Heth 022

Witt, Andrew
Title: Changes in Macroinvertebrate Composition Over Time in the Little River in Relation to Fish Populations
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Wolf, Megan
Title: Mission & Philanthropy of Faith-Based Apparel Companies
Session: Graduate Studies Poster Session
Day & Time: Tuesday, April 19th 5:00 pm-6:00 pm
Location: Heth 014

Yarbrough, Zachary
Title: Shoreline Change and Sedimentation of Claytor Lake
Session: Geospatial Science Poster Session
Day & Time: Wednesday, April 20th 2:30 pm-4:00 pm
Location: Center for the Sciences Mainstreet Lobby

Yates, Ricky
Title: Undergraduate Knowledge of Autism Spectrum Disorder
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Zabdyr, Angelica
Title: Workaholism as a Mediator of the Relationship between Organizational Commitment and Work-Family Conflict
Session: Psychology Poster Session II
Day & Time: Thursday, April 21st 5:00 pm-6:00 pm
Location: Heth 014

Zulfiqar, Abdullah
Title: Meet Ohmy
Session: Arctic Geophysics Oral Presentations
Day & Time: Wednesday, April 20th 7:10 pm-7:30 pm
Location: Center for the Sciences M 037