srca 2012 Student Research & Creative Activity Day

WEDNESDAY, APRIL 18
HUNT UNION BALLROOM




SUNY ONEONTA

SUNY ONEONTA

2012 Student Research & Creative Activity Day

April 18, 2012
10:00 AM – 4:00 PM
Hunt College Union

Sponsored by:

College at Oneonta Foundation, Inc.
Division of College Advancement
Grants Development Office
Office of Alumni Affairs
Division of Academic Affairs

2011/12 College Senate Committee on Research

Thomas Beal (History)
Jacqueline Bennett (Chemistry & Biochemistry)
Kelly Gallagher (Chemistry & Biochemistry)
Mette Harder (History)
Jen-Ting Wang (Mathematics, Computer Science & Statistics)
Michelle Johnson (student representative)
Christine Merton (student representative)
Kathy Meeker, *ex officio* (Grants Development Office)

http://www.oneonta.edu/a/srd/

SRCA 2012 Student Research & Creative Activity Day

PROGRAM

10:00 AM – 12:00 PM

Viewing of student posters, computer displays and other exhibits spotlighting student scholarship and creative activity

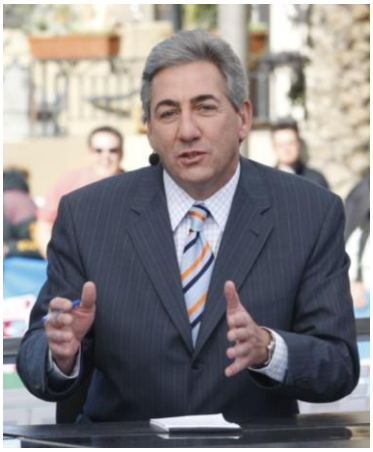
12:00 PM – 1:30 PM

Luncheon and Keynote Address:

Sal Paolantonio '77

ESPN National Correspondent

From WONY to ESPN: You Can't Make This Stuff Up



Sal Paolantonio '77 is a national correspondent for ESPN, primarily covering the National Football League (NFL) for *SportsCenter*, *Sunday NFL Countdown*, *Monday Night Countdown*, *NFL Live*, and ESPN.com. He hosts ESPN's *NFL Matchup* preview show, as well as the "Sal Pal Football Hour" on ESPN's Philadelphia radio affiliate 97.5 The Fanatic. With ESPN since 1995, Paolantonio earned Emmys in 1996, 1997 and 2005 for his contributions to *SportsCenter*, and in 2001, 2004 and 2007 for his work on *Sunday NFL Countdown*. He also served as a special correspondent for ABC's *World News Tonight* and *Good Morning America* (1995-98). Prior to joining ESPN, Paolantonio was a political reporter and Philadelphia Eagles beat reporter for *The Philadelphia Inquirer*. Among his numerous awards and accolades, he was nominated for a Pulitzer Prize in 1987 for stories in *The Philadelphia Inquirer* that led to the first instance in New Jersey history of a state Superior Court justice being removed by the state legislature for judicial misconduct. He was also a reporter for the *Albany Times Union*, where he received the Associated Press' Enterprise Reporting Award in 1985. The author of three books, including the 2008 best-seller *How Football Explains America*, Paolantonio taught political and sports journalism and communications at St. Joseph's University in Philadelphia from 2002-08. He graduated from SUNY Oneonta with a bachelor's degree in history, and from New York University with a master's degree in journalism. Paolantonio served in the U.S. Navy from 1979-1983, receiving the United Nations Meritorious Service Medal in 1981 and retiring as a full lieutenant.

1:30 PM – 4:00 PM

Viewing of student exhibits continues

SUNY College at Oneonta

2012 Student Research & Creative Activity Day

STUDENT PARTICIPANTS

FACULTY SPONSORS

PROJECT SUMMARIES

Students: Francis Alvino, Christopher Aucoin

Faculty Sponsor: Les Hasbargen (Earth & Atmospheric Sciences)

Refining Floodplain Stratigraphy at the Pine Lake Environmental Campus Archaeological Site Using GPR, EMI, and GPS

The Pine Lake Environmental Campus (PLEC) of Hartwick College provides an excellent research locale to investigate floodplain stratigraphy. The PLEC rests on a glacial moraine and Holocene floodplain next to Charlotte Creek in central upstate New York. Archaeological excavations on the floodplain have unearthed artifacts dating from the 20th Century to nearly 10,000 years before present (BP). Previous ground penetrating radar (GPR) surveys of this floodplain revealed numerous channel and bar-like features in the radar stratigraphy. Our work builds on that study, correcting problems with geolocation of profiles, increasing the data density, adding an electromagnetic induction (EMI) profile survey, and characterizing surface topography with differential GPS. For our surveys, we partitioned the floodplain into rectangular grids. Each grid had 0.5 m spacing between each survey line. For each line we shot GPR at 1-cm-spaced intervals, and followed the same path with EMI, collected at roughly 1-m spacing between shots. Static GPS receivers provided georeference control, and roving GPS attached to the GPR captured local topography. We will compare EMI and GPR signals to better understand the physical response of GPR to regions of high conductivity, and test the utility of EMI for archaeological investigation in floodplain settings.

Students: Christopher Aucoin, Francis Alvino

Faculty Sponsor: Les Hasbargen (Earth & Atmospheric Sciences)

Dinosaur Footprint Reservation in Holyoke, Massachusetts: A Review of Recent Work

Dinosaur tracks have long been studied as indicators of morphology, behavior and environmental conditions through both qualitative and mathematical means. In the past, tracks have been used to estimate the size and speed of the animal. Recently, some of the mathematical relationships relating track size to body size have been called into question. For the past two years, we combined differential GPS receivers, a total station surveyor, and hand-held photographs to map and characterize dinosaur tracks in Holyoke, Massachusetts, one of several Jurassic-aged dinosaur sites in the Connecticut River Valley. The final product is a virtual field location in GIS, where we can measure track direction, size, shape, and degree of preservation, as well as additional environmental data, such as ripple marks. The dinosaur tracks and ripple marks appear on multiple thinly stacked beds, and we explored the ability of ground penetrating radar (GPR) to identify trackways buried beneath the surface bed. GPR revealed disruptions in the subsurface of the same scale as exposed tracks, leading us to conclude that radar could detect the buried tracks; however, the data is still being reviewed. Here we present our findings thus far and propose future directions for our project.

Students: Kaitlyn Austin, Erica Bornhoft, Maria Keable, Andrew Kuleso, Jeremiah O'Brien, Jaclyn Penny, Colleen Rappa, Matthew Weeks, Amanda Zdanowicz

Faculty Sponsors: Paul Bischoff (Adolescence Education), James Ebert (Earth & Atmospheric Sciences), Paul French (Physics & Astronomy), John Schaumloffel (Chemistry & Biochemistry)

Reflective Pathways: The Impacts of an Urban Science Teaching Field Experience on Noyce Scholars Decisions to Teach Science in the New York City School System

A major goal of the National Science Foundation-funded SUNY Oneonta Noyce Scholars Program in Science Education is to prepare teachers for the demanding environment of high-need urban science teaching. To that end, twenty SUNY Oneonta Noyce Scholars in Science Education participated in a one-week cultural and science teaching internship in the New York City (NYC) schools during January 2012. In this poster, the Noyce Scholars report what they've learned about the demands of urban science teaching, urban schools, and the city environment. Data are reported from reflective journal entries recorded before, during, and two weeks following the NYC internship experience.

Students: Gilbert Badger, Bradley Bowers, Edward Gazzetti, Ben German, Eamonn Hinchey, Alex Levenstein, Tyson Robb, Brandt Scott, Joseph Stressler, Katherine Whitcomb, Owen Zaengle

Faculty Sponsors: Willard Harman, Florian Reyda (Biology/Biological Field Station), Jeffrey S. Heilveil, Donna Vogler (Biology)

2011 Student-Facilitated Research at the SUNY Oneonta Biological Field Station

More than 30 undergraduate students, one graduate student, and two high school students directly participated in research activities in 2011 at the Biological Field Station (BFS) in Cooperstown during 2011. Nine students held summer research internships, during which they conducted field and lab research in applied aquatic ecology, wetland ecology, parasitology, wastewater treatment, and other environmental/field biology disciplines. Students participated in Directed Research or Independent Studies with Dr. Florian Reyda, contributing to his ongoing study of fish parasites in and around Otsego Lake. Students involved as BFS research interns and student research assistants contributed technical reports of their projects to the BFS Annual Report, which is made available online and in hardcopy each spring. Eighteen students took part in an intensive field entomology course offered by Dr. Jeffrey Heilveil; the student collections were used to develop of a list of species present on the BFS Thayer Farm Complex. A Biology Department graduate student under the advisement of Dr. Donna Vogler conducted research on marsh thistle, with the support of BFS interns and staff.

Students: Charlotte Barrett, Sara Bueti

Faculty Sponsor: Theresa Russo (Human Ecology)

College Students' Perception of Parenting Styles and How It Impacts Relationships

According to developmental psychologist Diana Baumrind, there are three types of parenting styles: authoritative, authoritarian, and permissive. Each parent sets different standards and beliefs about how to raise their children. Researchers, however, have found that children raised by authoritative parents report better relationships with parents and have overall better academic achievement than children from permissive and authoritarian parents (Dornbusch, Ritter, Leiderman, Roberts, and Fraleigh, 1987). Research has also found that children of authoritative parents consume less alcohol, have increased competence and self-esteem, and have an easier adjustment to college than children from permissive and authoritarian households (Wintre and Yaffe, 2000). This research study surveyed 150 SUNY Oneonta students of all different academic years and backgrounds about how they perceived their parents' parenting style and their relationship with parents. They were also asked questions about their academic performance, transition to college, and overall substance use. Our research found that most students reported having a very close relationship with their mothers (74%) and fathers (58%). Most students (57%) reported their parents using an authoritative parenting style, while only 7% reported their parents using a permissive style, and 20% reported their parents using an authoritarian style. The relationship between parenting style and parent-child relationships, as well as student achievement, transition to college, and alcohol use, will be discussed.

Student: Jessica Bartalsky

Faculty Sponsor: Toke Knudsen (Mathematics, Computer Science & Statistics)

Vera Sanford

Vera Sanford was an accomplished mathematics professor who finished her teaching career at the State University of New York College at Oneonta. Sanford taught in the Mathematics Department from the early 1930s until the late 1950s. In spring 2011 I studied Vera Sanford and her impact not only in Oneonta, but across the country. I hope to shed light on her numerous accomplishments and to recognize her for these achievements, which were made at a time when math was greatly dominated by males. Sanford taught at many different schools in the northeast before settling in Oneonta. She formed the Mathematics Department at the State College at Oneonta which had been included in the branch of science in the early 1930s. Sanford wrote the book *A Short History of Mathematics* in 1930; it was one of the first-ever American books written about mathematics. Sanford was also a member of a number of mathematical journals across the country. This poster highlights Sanford's significant accomplishments as a way of recognizing her for all that she achieved.

Students: Jessica Behzadi, Krysta Estey, Jennifer Scott

Faculty Sponsor: Dawn Hamlin (Educational Psychology, Counseling & Special Education)

Availability of Extracurricular Activities for Students with Disabilities

Opportunities for students with disabilities are often limited. While much has been accomplished to include disabled children in the classroom and at school, the Special Education Graduate Program at SUNY Oneonta noticed a lack of research and literature focusing on the inclusion of disabled children in extracurricular activities not associated with school programs. Activities were broken down into three main categories: sports, religious affiliations, and community programs such as 4-H. Primary source research indicated ample opportunity and willingness to adapt local programs to accommodate students with disabilities. While corporate and national levels of the organizations set guidelines and standards for the inclusion of students with special needs, local programs remained responsible for making the appropriate, specific modifications for the individual participants registered. Many also provided some form of training or buddy system for program staff.

Students: Daisy Bilenkin, Kelly Callaghan, Alora Korb, Michaela Martin, Cynthia Restrepo, Dustin Smith, Brendan Whitney

Faculty Sponsor: Kenneth S. Walters (Psychology)

Classification of ADHD Among College Students Using Measures of Academic Performance and Conscientiousness

The purpose of this study was to correctly classify college students with and without symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD), using indicators of academic performance and the trait of conscientiousness. Subjects included 611 college students, aged 18-24 years. Symptoms of ADHD were assessed using the Current Symptoms Scale (CSS). Based on normative data, subjects were classified according to likely diagnostic status (i.e., normal vs. likely ADHD). Subjects completed survey items pertaining to academic functioning, including: (a) GPA, (b) satisfaction with academic performance, (c) tendency to "struggle" with academic work, and (d) tendency to worry about academic performance. Subjects completed the NEO-Personality Inventory-3 (NEO-PI-3), which yielded six facet-level measures representing the trait of conscientiousness (e.g., Competence, Order, Dutifulness, Achievement-Striving, Self-Discipline, and Deliberation). College students displaying ADHD symptoms exhibited poorer academic functioning. Those with ADHD symptoms exhibited lower scores across all six facets of conscientiousness. Scores on the total set of academic performance and conscientiousness measures were then used within a discriminant function analysis, in order to classify subjects into their respective diagnostic groups (i.e., normal vs. likely ADHD). This resulted in a single significant discriminant function, which demonstrated a 77.40% correct classification rate, which was significantly better than chance.

Student: Melanie Boehmer

Faculty Sponsor: Kirsten Hilpert (Human Ecology)

Effect of Weight Status and Exercise Habits on Resting Heart Rate in College-Aged Adults

This research examines the factors that influence weight status, dietary patterns, and eating attitudes of the students living on-campus at SUNY Oneonta through the evaluation of four questionnaires and collection of height, weight, and resting heart rate. The use of resting heart rate as a marker for cardiovascular disease is still being validated. My hypothesis is that the study will show a direct correlation between resting heart rate and body mass index, and an inverse relationship with exercise habits. Specifically, a higher resting heart rate (>80 beats/minute) is predicted to correlate with obesity and a sedentary lifestyle. I will also explore how stress levels and other dietary factors impact resting heart rate. Studies of factors affecting resting heart rate are lacking in this age group. Overall, the study findings will help guide the development of future interventions to improve the health status of college students living on campus.

Students: Valerie Boos, Michael Kleemann, Katherine Lawrence

Faculty Sponsors: Tom Horvath, Fred Zalatan (Biology)

Quantifying Bacteria and Viruses in Freshwater Environments

Microbes, including bacteria and viruses, play important roles in aquatic ecosystems. A wide variety of bacteria are essential in several processes such as decomposition and biogeochemical cycling. The role of viruses in such ecological processes is less understood, but the level of viral particles likely plays a role in regulating the growth of bacterial populations. The purpose of our research is to develop techniques in staining and quantifying microbes in several freshwater samples. Several filtering and fluorescent staining techniques are currently being employed to determine the most reliable method for quantitating bacterial and viral levels, with the long-term goal of observing how these levels affect the ecology of local aquatic environments. Preliminary results indicate that consistent bacterial counts can be obtained with SYBR® Gold staining.

Students: Kayla Brantmeyer, Lisa Burdick, Christine Luzzi, Gregory Kwasney

Faculty Sponsor: Lawrence T. Guzy (Psychology)

Hydration Status, Mood and Performance of a Women's Varsity Lacrosse Team: An Exploratory Field Study

Athletes may unknowingly arrive to or become dehydrated during their performance. This state of dehydration may negatively affect mood and performance. The focus of our research was on pre- and post-hydration during two practice sessions and a game. Twenty-three women's varsity lacrosse players volunteered. The Positive and Negative Affect Scale (PANAS), a Self-Report Physical Assessment Test, and a Hydration Survey were administered pre- and post-session. Game performance was rated by an independent judge. Hydration status was determined by measuring the osmolality (salinity) of saliva. For all three activities, players arrived hydrated, but were dehydrated by the end of the activity. Game day Post-Negative Affect and dry mouth were significantly related. Dry mouth was related negatively with number of sips of water during the game. We identified players with lowest osmolality scores (least salinity) pre-game. They were significant dehydrated by the end of the game. Their pre-game osmolality was negatively correlated with performance during the game. Two players who were dehydrated pre-game were unable to produce sufficient saliva for processing after the game. Pre- and Post-Game Day Positive Affect decreased and Negative Affect increased. These changes were associated with a loss at the end of the game.

Students: Erica Brooks, Brett Nicholas, Stephanie Spielberger, Emily Wood, Jennifer Hochberg

Faculty Sponsor: Kenneth S. Walters (Psychology)

Cognitive Weaknesses Among College Students with a Childhood History of Special Education: Differences in Working Memory and Processing Speed

This study examined difficulties in the cognitive ability areas of working memory and processing speed among college students with and without a history of special education involvement during childhood. Participants included 204 college students (91 men and 113 women) ranging in age from 18-24 years. On a survey instrument, students indicated whether they had received special education services during their primary and/or secondary education. Subjects also participated in a current cognitive assessment battery, which included multiple measures of working memory and processing speed. With regard to working memory, those with a history of special education during childhood obtained lower scores on both the Digit Span and Letter-Number-Sequencing subtests of the Wechsler Adult Intelligence Scale – IV (WAIS-IV). In the processing speed area, they also demonstrated weaknesses on the Symbol Search and Cancellation subtests and the Processing Speed Index of the WAIS, as well the Stroop-Word score and Stroop-Color scores of the Stroop task. That pattern of weaknesses is discussed within the context of academic performance in the college setting.

Students: Catherine Buckley, Jennifer Cesar, Nicole Dour, Amy Eiche, Christine Luzzi, Kaitlyn Marinaccio, Monica Nieminski

Faculty Sponsor: Doreen Comerford (Psychology)

Optical Illusions in Electronic Navigation Displays: A Follow-Up Study

Present-day navigation displays (e.g., GPS displays often found in automobiles and aircrafts) require judgments about distance, and those judgments depend on perceived space. Human lives and safety depend on these judgments. Previous research shows that judgments may be impacted by one of several perceptual illusions (i.e., the tendency to overestimate or underestimate filled space), and displays may be designed to either eliminate or reduce the impact of these illusions. This research evaluated the effect of the Filled vs. Unfilled Space Illusion by asking participants to imagine being an airline pilot utilizing a navigation display and to judge the distance from their own aircraft on flight paths of varying lengths, and superimposed intervening points such that the amount of "filled space" varied systematically. In a previous study, a significant interaction between the length of the flight path (line length) and intervening points was found. In this follow up study (which also analyzed reaction times), an analysis of errors in judgments revealed the similar findings. These findings suggest that the Filled vs. Unfilled Space Illusion may be important when making distance judgments in a practical setting such as a navigation task.

Student: Carolyn Bunn

Faculty Sponsor: Damayanthie Eluwawalage (Human Ecology)

Researching Irish Wedding Customs and Dress in the Traditional and Practical Context

I have designed and constructed a bridal gown and bridesmaid dress with aspects of both traditional and modern bridal elements. Through this project, I would like to share the importance and beauty of historical Irish garb, especially through the use of lace. My research compares traditional Irish wedding customs to modern-day wedding traditions. I have researched the history of the wedding in Ireland, and made a comparison between the traditional and modern-day wedding apparel.

Students: Kelly Callaghan, Alora Korb, Michaela Martin, Cynthia Restrepo, Dustin Smith, Brendan Whitney, Daisy Bilenkin

Faculty Sponsor: Kenneth S. Walters (Psychology)

Increased Drug and Alcohol Usage Among College Students with Symptoms of Borderline Personality Disorder

This study examined increased risk for substance usage among college students with clinically elevated borderline personality disorder symptomatology. A total of 676 college students (231 men and 445 women) were included in this study. Participants ranged in age from 18-24 years of age. Subjects completed the Personality Assessment Inventory (PAI), which includes a comprehensive measure of borderline personality symptoms. Those who scored more than 1.5 standard deviations above the mean (using college student norms) were classified as having clinically elevated borderline personality symptoms. Those scoring at or below the mean were classified as "normal." Subjects also completed a survey, in which they reported their average weekly alcohol consumption, as well as rates of usage of multiple classes of other drugs. Results indicated that college students with symptoms of borderline personality disorder reported significantly greater usage of alcohol and drugs in all areas assessed.

Student: Karen Campbell

Faculty Sponsor: Michael J. Brown (Psychology)

Homophobia and Jurors' Perceptions of Same-Sex Sexual Harassment

This study examines whether the gender of the parties involved influences jurors' perceptions of a case of hostile work environment sexual harassment. We also examined whether attitudes toward lesbians and gays moderate jurors' decisions in such cases. Participants (N = 320) were asked to play the role of jurors in a civil trial by reading a trial transcript in which the plaintiff was suing his/her former employer for wrongful termination after exposing sexual harassment by a supervisor.

Participants rendered a verdict and completed a series of measures relating to their perceptions of the case and of the parties involved. Participants also completed Herek's (1988) Attitudes Toward Gays and Lesbians Scale, and Kerr & Holden's (1996) Gender Role Beliefs Scale. Overall, participants attributed less responsibility to defendants, and more responsibility to plaintiffs, in same-sex harassment scenarios than in opposite-sex scenarios. Attitudes toward lesbians and gays moderated these effects only slightly. Future research should consider how participants' gender role beliefs and prototypes of sexual harassment might influence their perceptions of such cases. Implications of these results for psychological theory and the legal system will be discussed.

Students: Alexander Chase, Michael Eramo

Faculty Sponsors: James Michels, Allen Anderson (Physics & Astronomy)

Seismometer Construction and Principles of Operation

The primary objective of this research project is the assessment of harmonic motion considerations applicable to the design and operation of a seismometer. These considerations focus attention on how a successful seismometer is built and maintained. The basic principles are applicable to a wide range of physical considerations in both classical and quantum physics. Two basic seismometer designs were considered – a horizontally mounted physical pendulum, and a mass-spring configuration. After much research, conducted both experimentally and through literature, a design was implemented and constructed. Current research is focused on the calibration and operation of the seismometer in order to effectively record and measure seismic activity.

Student: Shing Chung Zeus Chiu

Faculty Sponsor: Sen Zhang (Mathematics, Computer Science & Statistics)

Interacting with Hologram Using Kinect

In this project, I implemented a human-3D model interaction system in three components. The first component is the motion-capturing socket client that uses Microsoft Kinect to detect and capture human beings' arm movements. The second component is a model-controlling Microsoft XNA socket client that controls skinned 3-D models. The third component is a socket server that communicates with the above two types of clients so that the motions captured by the Kinect client can be sent to the control client to instruct the 3-D models to move accordingly. To create a hologram effect, I built a simple setup that uses plexiglass to project an image into the air through reflection. Furthermore, I explored the voice recognition function that was newly supported by the 2012 Kinect Software Development Kit. The system is implemented in C# and the preliminary results of the project are interesting.

Students: Kimberly Chong, Kerianne Hofsiss, Alexandra Nichols, Amy Nieves

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Fat Replacement in Ice Cream

The main purpose of this research is to analyze the effects of using avocado as a fat replacer in ice cream. Heavy cream will be substituted with avocado in order to reduce saturated fat content in ice cream. In this experiment, full-saturated-fat, half-saturated-fat, three-quarters-saturated-fat and one-quarter-saturated-fat vanilla ice creams will be produced. All ice creams besides the full-fat will replace a portion of the heavy cream with avocado. The following characteristics will be evaluated by potential customers through the sensory evaluation survey: taste, texture, consistency, color, odor, viscosity, firmness, melting point and overall acceptability. The independent variables in the experiment will be the percentages of avocado replacing the heavy cream, which are 25%, 50% and 75%. The dependent variables are the sensory characteristics, including taste, texture, consistency, color, odor, viscosity, firmness, melting point and overall acceptability. The results of this research will provide information that may help people make healthier desserts by replacing saturated fat with monounsaturated fat.

Student: Matthew Cohen

Faculty Sponsors: Sunil Labroo, James Michels (Physics & Astronomy)

Extraordinary Hall Effect in Dilute Magnetic Thin Films

In a previous study conducted by another student on a thin film sample with 1 atomic % nickel in copper, saturation in the measured Hall resistance was observed at high magnetic fields. This behavior was likely caused by the Extraordinary Hall Effect, which has been studied previously in other magnetic thin films (Gerber, 2002). The current investigation will attempt to determine if a similar trend can be observed using various atomic % concentrations of nickel in copper which have not yet been analyzed. A secondary focus is on what role the magnetization of Ni plays on the overall properties of the sample. The ongoing research and results will be presented in this poster. Reference: A. Gerber et al. *Journal of Magnetism and Magnetic Materials* 242-245 (2002), 90-97

Students: Cameron Cortese, Leanne Enrico, Jamie-Lynn Falco, Oluwakemi Ogunmuko, Katharine Hess, Alexis Cornell

Faculty Sponsor: Lawrence T. Guzy (Psychology)

Recognition of Three Facial Expressions as a Function of Facial Edema and Orientation

When astronauts encounter microgravity, fluids that normally drain from the head as a result of Earth's gravity instead remain in the head, resulting in facial edema. This swollen face masks unique changes in the face that accompany different emotions. The problem is compounded as astronauts encounter each other in numerous orientations other than upright. We selected happiness, anger, and pain expressions as they displayed similar characteristics, i.e., teeth were visible in each photographed emotion. Thirty-five students volunteered. Three photographed emotions were taken of a woman's face while she was standing upright and three while she was lying on a surface at a six-degree head-down position simulating microgravity. Each image was randomly presented for four trials, upright and inverted. Facial edema resulted in a significant reduction in mean accuracy (64%) regardless of orientation of the face as compared with no edema (84%). Regardless of orientation, facial edema for the happy expression showed accuracy of 82%, while pain and anger were accurately detected only 54% of the time. Anger and pain were interchangeable except with inverted facial edema, where pain was misidentified as happiness. Facial edema poses a significant problem to astronauts' ability to communicate nonverbally.

Student: Andrew Daigler

Faculty Sponsor: Florian Reyda (Biology)

A New Species of Cestode from the *Himantura walga* (Dwarf Whipray) of Borneo

This study is an extension of a large-scale survey of parasites (which include cestodes) found in freshwater elasmobranchs of Borneo. Each of these cestodes is thought to be, or found to be, new to science. In this project, data from cestode specimens of two individual *Himantura walga* (Dwarf Whipray) were recorded for various lengths, measurements and counts. The data was recorded through use of light microscope examination of whole mounted specimens. The length measurements include the morphological features and organs such as bothridia, overall size, testes, stalk length, germinitive zones, proglottids, loculi, Mehlis glands, ovaries and cirrus sacs. Count measurements included loculi, proglottids, testes, mature proglottids, and proglottids which are wider than long. The above data on cestode specimens from two *H. walga* hosts, and the comparison of morphological features to other known cestode species, suggest that these specimens represent a genus and species that are new to science.

Student: Derrick Davis

Faculty Sponsor: Toke Knudsen (Mathematics, Computer Science & Statistics)

The Uses and Historical Implications of the Abacus

According to Forbes.com, readers, editors and a panel of experts ranked the abacus as the second most important tool of all time in terms of its impact on human civilization, the first being the knife and third being the compass (Ewalt, 2005). This revolutionary tool has been used for over 2,000

years, but why? *The Uses and Historical Implications of the Abacus* will explore the controversial roots of the abacus, and delve into its importance to the ancient civilizations that used the tool. This presentation will also briefly explore modern uses of the abacus, particularly in an education setting.

Student: Madison Davis

Faculty Sponsor: Yun-Jung Choi (Human Ecology)

Fashion Entrepreneurial Study: Mock Business Ownership and E-Commerce Relations

"Technology has evolved. The economy has shifted. The world has changed. And, today's entrepreneurs do more than just start businesses." (Babson.edu, 2012) The purpose of this study was to morph myself into an entrepreneur by generating a mock business. *Back to Basics* will consist of basic garments in various colors and sizes. American Apparel has filed for bankruptcy for the third time, making this the perfect time for an improved store to take its place. Research shows that e-commerce has become increasingly successful in the past decade, leaving my business with an automatic advantage. Based on manufacturing prices, I have high hopes that retail prices will stay relatively low. I am optimistic that people will feel satisfied with the quality of what they are purchasing. I plan to advertise on college campuses, as well as on social media sites. Promotional discounts will be offered to those showing strong brand loyalty. Being categorized as "online only" gives us opportunity to expand greatly in the future if deemed successful. This study has prepared me to enter business, as well as the fashion world. I hope to become an entrepreneur, so I can control and create my own business and lifestyle.

Students: Devin DeGaetano, Adriana Burbridge, Brad Burridge, Lianne Budd

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

White Bean Purée as a Substitute for Cheese in Macaroni and Cheese

The purpose of this research is to reduce fat content of a common comfort food, macaroni and cheese. Because macaroni and cheese is a common food it could result in significant impact if a reduced-fat alternative were successfully developed. There will be four sets of samples that will contain 25%, 50% and 75% of white bean purée with cheddar cheese constituting the rest. From these samples the acceptability of the taste, texture, color, mouth feeling, and overall acceptability will be evaluated through sensory surveys. This research has the capability to lower the fat content of not just macaroni and cheese, but of other foods containing melted cheese, as well. A successful alternative to 100% cheese will allow a multitude of foods to become healthier through decreased fat content and better fit into a healthy diet. With the current obesity crisis, lower-fat options could allow individuals to eat the foods they are accustomed to without compromising on taste.

Student: Angela DiCorato

Faculty Sponsor: Nathaniel Bouman (Communication Arts)

Weathered: A Search for Beauty in Loss

Weathered: A Search for Beauty in Loss is a feature-length documentary in progress chronicling the piecing-together of events after a car accident that took my best friend's life and changed my life irreversibly. *Weathered* includes interviews with friends, relatives, and others in order to make sense of the event and look for some good worth clinging to.

Student: Anthony Di Pietro

Faculty Sponsor: Hugh A. Gallagher, Jr. (Physics & Astronomy)

Development and Validation of a Technique for Determining the Background Mid-Latitude Total Electron Content (TEC) from CIDR Measurements

The North East CIDR (Coherent Ionospheric Doppler Receiver) Array was established to investigate medium-scale irregularities in the mid-latitude ionosphere, and their location relative to large-scale mid-latitude density variations. The CIDRs measure the Doppler shift on 150- and 400-MHz channels of low-Earth-orbiting satellite beacons. A linear combination of these Doppler shifts determines the

dSTEC/dt (rate of change of the slant TEC). TEC latitude profiles are constructed by integrating dSTEC/dt along the orbital track from an unknown initial TEC value while applying the obliquity function to correct for the observing geometry. The initial TEC value, which has a significant impact on the profile, is generally determined from other measurements. We have developed a method for inferring the average background TEC from the dependence of dSTEC/dt on the rate of change of the obliquity function. We describe the method for determining the average background TEC and constructing the TEC profile. The technique is then applied to observations by the CIDR located at Millstone Hill for a wide range of solar and magnetic conditions. This background TEC will then be compared to TEC derived from the density obtained by the Millstone Hill Incoherent Scatter Radar.

Students: Thomas Dominguez, Alyssa Fasano, Kelly Tiderencel

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Greek Yogurt as a Fat Repressor in Cheesecake

Although cheesecake is a deliciously smooth and creamy dessert, it is high in saturated fat and cholesterol. This experiment sought to determine the acceptability of non-fat Greek yogurt as a fat repressor in cheesecake. We have found that it is possible to make an unbelievably versatile dessert a little bit healthier for consumers. This study can provide further research into the possibility of using Greek yogurt as an acceptable fat repressor in many other products. Also, we hope that manufacturers will continue to improve their yogurt formulas to enhance their structural properties and, thus, increase the probability of completely replacing fat in dessert products.

Student: Julie Douglass

Faculty Sponsors: Jennifer Bueche, Mary Ann Dowdell (Human Ecology)

Broome County Office for the Aging "Halt the Salt" Program Trial

Strategies for sodium-reduction were presented at five Broome County Office for the Aging senior centers. Knowledge acquired was measured using a pre- and post-test. As a component of the presentation, three low-sodium dishes were made for participants to evaluate for acceptability. As a separate component of the project, two high-sodium recipes served regularly at congregate meal sites were selected for sodium reduction. These recipes were served at seven senior centers for clients to evaluate. Participants in the presentations (n=48), low-sodium taste tests (n=63), and the reduced-sodium menu items (n=83) participated voluntarily. Post-tests reflected improvement in the number of correct answers compared to pre-test. Answers to short-answer questions demonstrated new knowledge acquired from the presentations. Bread pudding and sloppy Joe recipes received overall acceptability ratings of 4.27 and 4.28, respectively, on a scale of 1 worst to 5 best. Participants rated minestrone, tomato sauce, and bean salad for overall acceptability 4.64, 4.80, and 4.54, respectively, on a scale of 1 worst to 6 best.

Students: Julianne Edwards, Amanda Longhi, Amanda Huerta, Mathew Reimen, George Venditti

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Tofu Used as a Ricotta Cheese Substitute in Traditional Lasagna

Dietary guidelines stipulate that cholesterol in the diet should not exceed 200 ml/dl. Reducing cholesterol in the diet is a nutrition concern in order to reduce the risk of problems such as heart disease. A major ingredient in lasagna is ricotta cheese; thus, lasagna is considered to be a high-cholesterol food choice. The main purpose of this research is to discover an appropriate cholesterol substitute that will produce a healthy, low-cholesterol and low-calorie product. This research will examine the different types of tofu that can be used as a cholesterol substitute in place of ricotta cheese in lasagna. In addition, this research will investigate the acceptability of lasagna using soft, medium-firm, and extra-firm tofu in place of ricotta cheese, and compare attributes such as taste, appearance, flavor, texture, and overall quality to the control (traditional lasagna recipe) made with ricotta cheese, as well as compared to each other. The outcome of this research will provide a healthy, low-cholesterol and lower-calorie alternative to lasagna, allowing individuals an alternative to consume cholesterol in moderation.

Student: John Eggleston

Faculty Sponsor: Jennifer Schlosser (Sociology)

Keeping Secrets: Understanding The Conditions of Sexual Assault Reporting Among College Students

Using the symbolic interactionist perspective, this study will conduct an online survey at a liberal arts college in the Northeast using a convenience sample of sociology and criminal justice majors. This study will evaluate how rape awareness programs and services are presented to students by the educational institution, to see how students perceive the importance of the information and if the institution creates an open dialogue with the student body that brings across the seriousness and pervasiveness of the problem. This study will also evaluate what effects this relationship between students and the institution has on the students' likelihood to report the crime or use rape crisis services.

Student: Michael Eramo

Faculty Sponsor: Allen Anderson (Physics & Astronomy)

The Garden Smart Timer

Seed germination and subsequent plant growth is a complex process involving many triggers, including soil temperature and the number of daylight hours. For both commercial growers and the home gardening enthusiast, better yields are obtained by increasing the growing season by "tricking" the plants with regard to their location. This may be accomplished by heating the soil and using artificial light to lengthen the day. For example, suppose you desire to make your plants believe it is April when it is actually January. Using a heating pad to elevate the temperature of the soil bed and a timer to keep the bed illuminated for the proper length of the days in April should do nicely. Maintaining the proper length of day is tedious unless one has an automated timer that is programmed to maintain the appropriate length of day. This puzzle spurred creative thinking which resulted in a final solution, the *Garden Smart Timer*.

Students: Andrew Feiner, Curtis Frederick, Joseph Prio, Danielle Davaros

Faculty Sponsor: Keith Schillo (Biology)

Use of Video Capture Software to Study the Effects of Dehydration on Spatial Learning in Mice

During the past two years we have attempted to develop a model for studying the effects of dehydration on spatial learning in mice. We have relied on the use of a Barnes maze to assess the rate at which mice learn to locate a target over a four-day period. The rate at which a mouse learns the location of the target is measured by changes in the time required to find and enter the target, as well as the total distance the mouse travels to locate the target. In a preliminary study, we were able to measure the time required to locate the escape chamber, but had no means to assess the distance traveled. In a follow-up experiment, we employed the use of a web cam and video capture software to more accurately measure both the time and distance required to locate the target. This experiment is designed to test the hypothesis that mild dehydration affects spatial learning in mice. The experiment involves a control group consisting of six male mice that have free access to water and an experimental group consisting of six male mice that are deprived of water for 12 hours before testing.

Student: Arica Fratarcangeli

Faculty Sponsors: Jennifer Bueche, Mary Ann Dowdell (Human Ecology)

Living Well with Diabetes

The purpose of this intervention was to provide the basic nutritional knowledge needed to better manage diabetes through diet and healthy lifestyle changes. Two one-hour nutrition classes were given at each of three Pennyslvania Area Agency on Aging senior centers involved. Participants also received educational handouts for increased reinforcement of learning. Participants (n=24) were congregate meal consumers with diabetes or pre-diabetes. A total of twenty-four participants took part in the entire project. Outcomes were measured using a pre-test administered before the first class

and a post-test given after the second class, when education was completed. Results showed excellent improvement in nutrition knowledge after education was given, and overall goals were met. Major improvements were seen on the question of proper grams of carbohydrate per carbohydrate choice and on the question addressing proper carbohydrate choices per meal. These represent basic knowledge for diabetic meal planning, which is a very important element of being able to live well with diabetes. At the end of the program, 62% of the participants indicated that they had considered or had already made changes such as using carbohydrate counting, watching portion sizes, changing eating habits, spreading carbohydrates evenly throughout the day, and cutting fats.

Student: Edward Gazzetti

Faculty Sponsor: Devin Castendyk (Earth & Atmospheric Sciences)

Observations of Sub-Ice Currents in Four New York Lakes Using ADCP

Few studies have been made on sub-ice currents and seiches in ice-covered lakes. Research was conducted during the winter of 2010-2011 to investigate shallow currents within four seasonally ice-covered lakes in upstate New York. An Acoustic Doppler Current Profiler (ADCP) was inverted and fixed in place in an ice hole above the deepest portion of each lake. The ADCP measured three-dimensional currents within the first five meters below the ice surface. The lakes investigated had high surface-area-to-depth ratios expressed as relative depth (%). The theoretical first-mode surface seiche of each lake was calculated using the length and maximum depth of each lake. Arnold Lake had a theoretical seiche period of 2.3 minutes, a mean horizontal speed of 19.0 cm/s, a maximum horizontal speed of 21.8 cm/s, and an average current direction of N 188° E. Canada Lake had a theoretical seiche period of 4.8 minutes, a horizontal speed of 21.8 cm/s, a maximum horizontal speed of 74.1 cm/s, and an average current direction of N 176° E. Lake Canadice had a theoretical seiche period of 10.8 minutes, a mean horizontal speed of 19.7 cm/s, a maximum horizontal speed of 70.2 cm/s, and an average current direction of N 178° E. Otsego Lake had a theoretical seiche period of 21.8 minutes, a mean horizontal speed of 41.1 cm/s, a maximum horizontal speed of 200 cm/s, and an average current direction of N 188° E. In each lake, horizontal current speed, vertical velocity, and current direction oscillate over time. One possible explanation for these changes includes surface seiches caused by wind acting upon the ice cover.

Student: Nancy Gladstone

Faculty Sponsor: Michael J. Brown (Psychology)

How Young is Too Young? College Students' Perceptions of Statutory Rape

Statutory rape laws are based on the premise that until a person reaches a certain age, that individual is legally incapable of consenting to sexual intercourse. Although there is general support for the concept of statutory rape as illegal, there is substantial debate on how vigorously such cases should be pursued and under what circumstances. This study examines college students' perceptions of statutory rape cases in which the age difference between the defendant and "victim" is manipulated. Participants read a vignette and completed a questionnaire about the scenario and the parties involved. In general, female participants were more likely than male participants to rate that the defendant took advantage of the "victim," that the defendant is a sexual predator, and that the defendant is lying about the consensual nature of the sexual relationship. The age difference between the defendant and "victim" had a strong effect on verdict and participants' perception of the scenario. For example, participants were more likely to vote not guilty when there was a 5-year (61%) and 6-year (70%) difference between the parties. Conversely, participants were more likely to vote guilty when there was a 7-year (64%) and 8-year (78%) difference between the parties.

Students: Shelby Goyette, Brett Simeone, Joshua Slifkin

Faculty Sponsor: Qun Wu (Economics, Finance & Accounting)

Mutual Fund Performance Analysis

This study analyzes the risk-adjusted returns of one target mutual fund from The State University College at Oneonta Foundation, Inc. compared to five competing mutual funds with similar characteristics from the Center for Research in Security Prices' (CRSP) Mutual Fund Database. The

mutual funds are evaluated using different financial ratios and asset pricing models. We look into fund performance for ten-year, five-year, three-year, and one-year time periods. Based on the results, recommendations are made to the College Foundation for future investment.

Student: Anna Greenblatt
Faculty Sponsor: Dona Siregar (Economics, Finance & Accounting)

Domestic Housing Bubbles and the Inter-Linkages in Global Stock Markets

Following the crash of the housing market in 2007, the financial markets began a two-year decline. There are several macroeconomic factors that affect financial markets. The intention of this paper is to use macroeconomic factors as controls using the Arbitrage Pricing Theory (APT) to show at what extent the housing crash affected the financial markets. My hypothesis is that the crash of the housing market had significant impact on the decline of the financial market. My second hypothesis is that there was a connection to Japan's, U.K.'s, and Australia's stock markets and the decline in the U.S. financial markets that occurred because of the housing bubble. The significance of these hypotheses is to show the integration of the global stock markets and how, although it can have both positive and negative consequences, in this case there were negative consequences.

Student: Evan Grodzitsky
Faculty Sponsor: Dona Siregar (Economics, Finance & Accounting)

Market Interest Rates vs. Commercial Bank Profitability - Plus Innovation

What effect do market interest rates have on the profitability of commercial banks pre- and post-innovation? My research paper largely replicates Mark J. Flannery's "Market Interest Rates and Commercial Bank Profitability: An Empirical Investigation" (1981) by using the same formulas and regression models to evaluate the impact market rate fluctuations have on bank profitability; however, I incorporate innovations made in the field in recent years, and see if they act as hedges against the interest rates in relation to the profitability of commercial banks. Since Flannery's study was conducted pre-innovation, and mine post-innovation, I will be able to reach a conclusion by simply comparing the results of the two. I hypothesize that innovations made in the commercial banking sector do serve as hedges against volatile market interest rates.

Student: Shawn Grove
Faculty Sponsor: Nancy Bachman (Biology)

Red and Green Make Yellow: A Colorful Approach to Analyzing Protein-Protein Interactions

The gene COX4 codes for a component of the mitochondrial enzyme cytochrome oxidase, and shares a bidirectional promoter with a gene of unknown function, COX4NB. Most gene products sharing a bidirectional promoter also share similar functions, and localize to the same subcellular areas; however, COX4 and COX4NB do not co-localize. A yeast two-hybrid assay, performed by Rual et al. (2010), identified a possible association between COX4NB and a protein involved in cell division and cell death, TTC35. By separately cloning the COX4NB and TTC35 genes into two differently colored fluorescent expression vectors (red and green), I was able to determine their subcellular localization and interaction in vivo, using NIH 3T3 mouse cells. These fluorescently tagged proteins are shown to co-localize in the cytoplasm (yellow), and appear to increase mitochondrial DNA staining.

Students: Brittany Gutierrez, Shayna Heron, Kylie Lambert, Leslie Schafer
Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Pureed Zucchini as a Fat Mimetic in Brownies

Americans' diet should be low in fat because high levels of fat can lead to obesity, which causes heart disease, hypertension, stroke, type 2 diabetes, and different types of cancer. Brownies contain butter, which is a source of fat. Americans are not willing to give up the delicious taste of brownies to be healthy. The purpose of this study was to determine if replacing the butter in brownies with puréed zucchini could lead to a brownie with a similar taste, texture, color, flavor, and overall acceptability.

Four different percentages were used: 0%, 50%, 75%, and 100% of puréed zucchini in the recipe. Twenty-one consumers were surveyed using a Likert scale with five questions to determine the acceptability of these brownies. From this research it was determined that the brownies with the highest percentage of puréed zucchini was least acceptable, whereas both the 50-percent and 75-percent puréed zucchini samples were acceptable. The most acceptable sample was the control group.

Students: Blair Hanson, Lauren Shore
Faculty Sponsor: Allan Green (Chemistry & Biochemistry)

Curcumin: Glucose Uptake and Lactate Release in Adipocytes

We have conducted several experiments to measure the percent of glucose that is taken up by fat cells and converted to lactate. In our experiments we incubated the epididymal fat pads of a lab rat in a buffer containing glucose. From there we conducted an assay for both glucose and lactate that uses a spectrophotometer to measure each sample. We found that about 22% of the glucose taken up by the fat cells was converted to lactate. Currently we are conducting ongoing research to study the effects of curcumin. Dr. Green has previously shown that curcumin can inhibit the uptake of glucose into cells, and we now hope to quantify the effect curcumin has on glucose metabolism. We hypothesize that curcumin will decrease the amount of glucose taken up by fat cells, which could help to increase the glucose uptake by muscle cells where it is needed for energy. Though curcumin can never be directly used in humans (because it does not get absorbed into the blood stream), it would serve as a model from which further research can be conducted.

Student: Louise Hartmann
Faculty Sponsors: Keith Schillo (Biology), Rebecca Harrington (Office of Health Services)

The SUNY Oneonta Condom Challenge

Anecdotal evidence indicates that students at SUNY Oneonta express a strong preference for one leading brand of condom. This preference appears to be based on the belief that this particular brand is superior in performance to other brands; that is, that the more popular brand is more durable. In order to test this hypothesis, we conducted an experiment to determine the breakage rates of two leading brands of condoms. We also conducted a second experiment to determine the effects of temperature on breakage rates. The effects of temperature are important because students may store condoms at temperatures that exceed common room temperatures, for example, in a wallet kept in a pants pocket. The first experiment involves 200 condoms, 100 of the leading brand and an additional 100 of a less popular brand. Technicians (trained in proper administration of condoms) apply the condoms to wooden phalluses and record the number that break for each brand. The second experiment involves 100 condoms. Half of these condoms are incubated at 37° C for 2 days; the remaining 50 condoms are stored at 20° C. Breakage rates are determined for each group as described for experiment 1. Results of both studies will be made available to SUNY Oneonta students through the Health and Wellness Center as part of a campaign to promote condom awareness.

Student: Molly Hassett
Faculty Sponsor: Jennifer Withington (Biology)

Grazing on the Native Orange jewelweed (*Impatiens capensis*) and Effects on the Exotic Garlic Mustard (*Alliaria petiolata*)

Invasive species are the second-greatest cause of the loss of species in the world. In the Northeastern and Midwestern United States, Garlic mustard is pushing out native species. Various methods such as burning, using herbicides, or cutting down plants have been tried to control the spread of Garlic mustard, but all of these methods must be done continuously for years to maintain control. We will determine if a native plant, Orange jewelweed (*Impatiens capensis*) will grow better and out-compete Garlic mustard with lower amounts of "grazing." We will also examine how much energy is stored in Garlic mustard's root system, as this is important in determining how well the plant will do in its second year, including how many seeds it can produce. This could show that limiting the number of herbivores (such as white-tailed deer) in an area could be a new control method to protect native species from Garlic mustard.

Student: Eamonn Hinchey

Faculty Sponsor: Donna Vogler (Biology)

Detection and Control Measures for the Invasive Marsh Thistle (*Cirsium palustre*)

Invasive species are a threat to our global ecosystems. Locally, many new invaders threaten our ability to use the land, and to preserve it for biodiversity. A recent invader to this region is the Marsh Thistle, *Cirsium palustre*. This plant, which is endemic to the British Isles, could potentially threaten local pasture and wetlands throughout the northeastern United States. As a recent invader, this plant offers great potential for early eradication and detection. Last summer, our research team began a multi-faceted project to assess its impact. The project included mapping and identifying current populations, testing eradication methods, and implementing potential early detection rapid response measures. The discovery of a possible hybrid species has opened new research opportunities. In summer 2012, we will continue our monitoring and further our investigation of the potential hybrid.

Students: Ryan Hinton, Darrel Flanders

Faculty Sponsor: Paul Baumann (Geography)

Damage Analysis of a 2011 Northeastern Tornado Using Landsat Imagery

On June 1, 2011 a series of tornadoes ripped through the New England area. The most powerful and destructive one was an EF-3 (Enhanced Fujita Scale) that started over Springfield, Massachusetts and cut an approximately thirty-six-mile path eastward towards the community of Southbridge. This study analyzes the dimensions of the tornado using Landsat imagery taken prior to the tornado and slightly after the tornado. The study examines the movement patterns of the tornado and extent of destruction. Tornados have been touching down more frequently across the nation at higher rates than anticipated and have been creating more destruction. Landsat provides an efficient and effective means of examining and documenting these phenomena. Imagery from these satellites can help in focusing on long-term recovery efforts and the allocation of outside resources.

Students: Jennifer Hochberg, Erica Brooks, Brett Nicholas, Stephanie Spielberger, Emily Wood

Faculty Sponsor: Kenneth S. Walters (Psychology)

Childhood Oppositional-Defiant Behavior as a Predictor of College Student Drinking

This study examined average weekly alcohol consumption among college students who either did or did not display a pattern of clinically significant oppositional-defiant behavior during childhood. A total of 204 college students (90 men and 114 women) were included in this study. Participants ranged in age from 18-24 years. The Current Symptoms Scale (CSS) was used to retrospectively assess symptoms of Oppositional-Defiant Disorder (ODD) during childhood (i.e., from age 5 to 12 years). Published norms with recommendations for clinical significance were used to form a normal group and a group that previously displayed clinically significant levels of oppositional-defiant behavior during childhood. Current college student drinking was assessed with a self-report survey, widely used in prior research. The average total number of weekly standard drinks was compared between the two groups. Results indicated that students who displayed oppositional-defiant behaviors during childhood consumed significantly more alcohol weekly, on average, compared to those without a history of oppositional-defiant behaviors. Implications of these findings are discussed within the context of relevant clinical literature.

Students: Christine Hunter, Travis Courtney, Lauren Livolsi

Faculty Sponsor: Keith Schillo (Biology)

Development of a Model to Study Food Addiction in Mice

Feeding behavior involves the same neuronal pathways that are implicated in drug addiction. Ingestion of sugar has been shown to cause the release of opioids and dopamine, neurochemicals that play roles in addictive behaviors. Binging (excessive consumption) is the first step of drug and alcohol addiction. Elevated intake of an addictive substance reinforces neuronal pathways that mediate the motivation to consume the substance as well as the reward associated with consumption. Our goal is to develop a model for inducing binge eating in mice so we can eventually test the

hypothesis that mice can become addicted to various high-calorie sweeteners. Briefly, binging is encouraged by restricting access to mouse chow and 10% sucrose solution for 12 hours and then allowing *ad libitum* consumption of chow and sucrose solution for 12 hours. We imposed this regimen on six mice for four weeks. The amount of food and sucrose solution consumed is determined for each week of the study and each mouse is observed for a 30-minute period three times a week in order to detect withdrawal behaviors (headshakes, teeth chattering, forepaw tremors), the second step of addiction. After only two weeks, all of the six mice have begun to express withdrawal behaviors.

Students: Marcello Iaboni, Shelby Zemken, Erin Potter
Faculty Sponsor: Gina Keel (Political Science)

Composting and Waste Classification at SUNY College at Oneonta

In 2009, an estimated 33.44 million tons of food scraps were discarded nationally. This food waste, which winds up in landfills across the country, is the largest source of methane gas, a greenhouse gas up to 72 percent more potent than carbon dioxide. These greenhouse gasses directly contribute to global climate change (EPA, 2009). SUNY Oneonta spends $238,000 on waste disposal. This project assesses the amount of food waste produced in Wilsbach, Mills, and Hulbert Dining Halls. Through two-week waste audits measuring volume of waste per container, and number of meals per day, we estimated volume of food waste produced by each dining hall. The results indicate that much of the food gathered by students is wasted. Through a campus composting initiative, waste can be diverted from the landfill and transformed into a valuable nutrient-rich soil amendment which can be used on campus in place of synthetic fertilizers. This can be done using several commercial-grade in-vessel composters. If in-vessel composting occurs on campus, the campus waste management contract may be negotiated and downsized in light of a decreased amount waste leaving each dining hall.

Student: Emmon Johnson
Faculty Sponsor: Devin Castendyk (Earth & Atmospheric Sciences)

The INAP Pit Lakes Database: A Novel Tool for the Evaluation of Predicted Pit Lake Water Quality

On a global scale, pit lake monitoring programs have generated a wealth of data on the geochemistry of pit lakes over the past three decades. These data could provide valuable insights on the likely water quality of future pit lakes and the design of mine closure plans. As such, there is a great need for an online, searchable database of pit lake observations. The International Network for Acid Prevention (INAP) has funded the development of the INAP Pit Lakes Database (http://pitlakesdatabase.org), which compares the surface water chemistry (pH, electrical conductivity, major cations and anions, and trace metals) of existing pit lakes based on location, ore body type, host rock, and commodity. For a user-specified parameter, the database generates pH-versus-concentration plots for all pit lakes, color-coded by ore deposit type, plus time-versus-concentration plots for individual lakes. For a given ore body type, the database calculates the minimum, maximum, and median concentrations of each parameter, which can be used to estimate the likely range of future lake water quality in pit lakes developing in similar ore bodies. The database will also calculate the variance between these observed data ranges and predicted values entered by the user.

Student: Lauren Johnson
Faculty Sponsor: Betty Wambui (Africana & Latino Studies / Women's & Gender Studies)

Corrective Rape: The Silencing Project

My topic is corrective rape, particularly focusing on South Africa. Corrective rape is a brutal tactic taken up by disgruntled, homophobic and sexist men, who use this as a means of "fixing" lesbian women's sexual orientation. Many times these women are discarded and left to die after these brutal attacks. In this country, the community often turns a blind eye towards these hate crimes and, in some instances, even encourages it. Through this project, I hope to discover what the general discourse is in South Africa, what is being done to bring awareness, treatment for victims, and prevention, and how the lesbian population is dealing with this threat.

Student: Lindsey A. Jones

Faculty Sponsor: Mary Ann Dowdell (Human Ecology)

Implementing an Employee Wellness for Health Promotion

This was an intervention promoting employee wellness at Tobyhanna Army Depot, Tobyhanna, Pennsylvania. The target population was comprised of members of the onsite Weight Watcher's group and Wellness Group. The goal was to increase employee knowledge to promote a healthy weight and lifestyle. Participants were offered individualized nutrition counseling, allowing them to describe current eating behaviors and learn ways to modify food intakes for healthier options. In addition, two group presentations were given. Each presentation addressed healthy eating behaviors and food choices, ideas for lower calorie food options, and understanding calories, carbohydrates and cholesterol. The participants were given a pre-test and post-test to assess if the objectives were met for the intervention.

Student: Marykate Kalotschke

Faculty Sponsor: Nancy Bachman (Biology)

Cytotoxicity of Imines

A recent dilemma in the medical field is the increasing resistance of bacteria to frequently prescribed antibiotics. Thus, there is a large initiative to discover new compounds with antibacterial properties. Imines are a class of organic compounds that feature a double bond between a carbon atom and a nitrogen atom. They have remained relatively unexplored even though they have been shown to exhibit a broad range of biological activities, including antibacterial, antiproliferative, and antimicrobial action. The goal of this project was to determine whether the imines synthesized by the BLONDES Research Group show antibacterial or antiproliferative properties. Several varieties of growth inhibition assays were used to test the effectiveness of imines at killing mammalian cells (mouse NIH 3T3 cells) and bacterial cells (*Escherichia coli* and *Staphylococcus aureus*). Each assay required the use of PrestoBlue™ Cell Viability Reagent, which changes color as the cells chemically reduce it in metabolic processes. The absorbance was then measured as a means of quantitatively measuring the viability of cells. Initial findings suggest that the imines tested do not affect bacterial growth. Results also suggest that imines synthesized from cinnamaldehyde are toxic to mammalian cells at higher concentrations.

Student: Andrea Kerr

Faculty Sponsor: Nathan Gonyea (Educational Psychology, Counseling & Special Education)

What's In Educational Research Textbooks? A Content Analysis

Teachers' knowledge of research in the field of education is not only important for enhancing their teaching techniques, but is also becoming a legal requirement. According to New York State's Part 100 section p., a school district is required to "use data to identify and implement an instructional program that is research-based." (New York State Department of Education, 2010) Evidence-based practices are also addressed in the renewal of the Individuals with Disabilities Education Act (IDEA) by stating, in section 665.b2D, that alternative education settings must be improved by using research-based practices. (U.S. Department of Education, 2004) In addition to this, the Obama administration released its revision of the Elementary and Secondary Education Act (ESEA) in 2010 and identifies that schools must be held accountable and use "data-driven, evidence-based interventions." (U.S. Department of Education) The purpose of this poster is to explore which aspects of educational research are most emphasized in the training of prospective teachers. To find this, 18 textbooks were analyzed for content coverage by counting the total number of pages dedicated to each topic. By doing this, it was found that the topics that spanned the most pages were ethics, reviewing the literature, and writing a research report. This poster will discuss the implications of these findings for teacher training programs.

Students: Angella Kim, Brittany Hunt, Bayla Akulin
Faculty Sponsor: Karen Joest (Human Ecology)

Hearing Their Voices: Building a Future

This pilot study examines the way that various risk and protective factors may negatively impact the levels of on-time graduation and increased dropout rates of rural high school students. We have used qualitative data collected through one-on-one recorded interviews with rural students who have left high school prior to graduation, often referred to as "high school dropouts." Each of the participants is currently seeking their General Education Diploma (GED). Through these interviews we are gaining a deeper understanding of the perspectives of these students as to why they leave high school prior to graduation and specific risk factors that increase the likelihood of dropping out. We are also gaining awareness as to how to better meet the individual needs of these youth. Current themes include a "tipping point" for most students, student feelings of being targeted by teachers and staff, negative behind-grade experiences, and the need for more flexibility in their schedules. The ultimate goal of this research would be to develop effective training tools for teachers and administrative personnel to not only decrease drop-out rates and increase four-year graduation rates, but to better understand the subtle messages that students receive regarding issues of inclusion within their educational programs.

Students: Heidi Kissinger, Jaclyn Fettinger, Elizabeth Flamman, Chelsey Samrau
Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Gluten-Free Pizza

The average pizza dough recipe includes flour. When you are on a gluten-free diet or have celiac sprue disease you have to take the flour out of your diet, but to prepare a pizza that is acceptable for all people to eat is a challenge. This study looks into using cauliflower or white rice flower as a replacer for flour in a pizza dough recipe.

Students: Kelsey Knutsen, Patrick Furlong, Ivan Chio
Faculty Sponsors: Paul French, Allen Anderson (Physics & Astronomy)

Analysis and Design of a Quarter-Wave Resonator Instrument

Air column resonance is fundamental to many musical instruments. This project entails the design, measurement, and modeling of quarter-wave resonant structures, with the goal of developing a working musical instrument. Quarter-wave resonators are structures which have a column of air with one end closed and the other open (e.g., the air inside of a water bottle). In this project, we analyze the sound quality and reliability of notes, develop tuning methods associated with the newly developed instrument and demonstrate pertinent physical principles amongst different shaped air columns.

Student: Torrie Kolb
Faculty Sponsor: Charlene Christie (Psychology)

Expressing Opinions When No One Knows Your Identity: Attitudes Within the World Wide Web

Technology allows people to express opinions through social networking sites, online message boards, and a myriad of other channels. Some of these communication vehicles permit comments to be made anonymously, while others require identification. The social identity model of deindividuation effects (SIDE; Reicher, et al., 1995) posits that computer-mediated communication has a binary effect on social behavior. It disinhibits people from social influence, and subsequently empowers them to speak freely. It also depersonalizes people, causing them to be viewed as group members instead of as individuals. The primary purpose of our study was to assess the nature of computer-based communication when evaluating others. We examined whether anonymity leads to disinhibited communication. Specifically, will anonymous participants give more critical evaluations of people who have opinions different from their own? The sample consisted of 68 students (60% female, 70% Caucasian, average age = 19.6). A series of regression analyses were used to examine the factors influencing participant evaluations of fellow students who either agreed or disagreed with their personal opinions. Results showed that both anonymity and differences in opinion were significant predictors of negative evaluations of other students.

Students: Alora Korb, Michaela Martin, Cynthia Restrepo, Dustin Smith, Brendan Whitney, Daisy Bilenkin, Kelly Callaghan

Faculty Sponsor: Kenneth S. Walters (Psychology)

Psychopathology Among Heavy Drinking College Students With and Without Alcohol Dependence Symptoms

Research on college student drinking has indicated that heavy consumption is not always associated with alcohol dependence, either in the short or long term. This study separated college students with heavy alcohol consumption into two groups: those with and without symptoms of alcohol dependence. They were then compared on measures of psychopathology. A total of 1169 college students participated in this study. From those, 171 students were identified as heavy drinkers based on responses to the Daily Drinking Questionnaire-Revised (DDQ-R). Heavy drinkers consumed more than 27 drinks weekly, on average. Subjects also completed the Substance Abuse Subtle Screening Inventory-3 (SASSI-3), which measures alcohol dependence. Heavy drinkers were separated into those with and without symptoms of alcohol dependence. As a broad measure of psychopathology, students completed the Personality Assessment Inventory (PAI). Results indicated that heavily drinking students with symptoms of alcohol dependence scored higher in the areas of: somatization, anxiety, depression, antisocial behavior, aggressive behavior, perceived stress, and lack of social support. Findings were consistent with prior research on college student drinking, suggesting that only a subset of heavy drinkers develop a pattern of alcohol dependence. Those who do are at increased risk for various forms of psychopathology.

Student: Stephanie Kromhout

Faculty Sponsor: Les Hasbargen (Earth & Atmospheric Sciences)

What are the Hallmarks of Floods in Lacustrine Deltas in Central New York?

In central New York, sedimentary deposits in historic reservoirs are under-exploited. These deposits could reveal a significant record of storm and flood events. Our project begins the work of linking flooding events to the sedimentology and stratigraphy as recorded in deltas in modern and historic lakes and reservoirs. We hypothesize that larger floods transport larger particles to a given location on the delta. Thus, we target grain size changes in sediment cores as a proxy for flood events. The selection of suitable coring sites is driven by considerations of the nature of sediment delivered to deltas in local lakes and reservoirs. Given the challenge of coring through gravel bars, the distal portion of the deltas is targeted. The use of sediment smears has been developed for determining grain size throughout the cores. These smears are then analyzed using a binocular microscope. Coring was conducted at ponds, lakes, and reservoirs in Otsego County.

Students: Cary Lange, Jason Sheehan, Umrhan Habal

Faculty Sponsor: Florian Reyda (Biology)

Pathology caused by *Leptorhynchoides thecatus* (Acanthocephala) in *Micropterus dolomieu* (Smallmouth bass)

The pathological effects of *Leptorhynchoides thecatus* (Phylum Acanthocephala) on the intestine and pyloric cecae of *Micropterus dolomieu* (Smallmouth bass) were examined. Fish were collected using hook and line or seine from Otsego Lake (Cooperstown, New York) during the 2011 summer months. Intestines and pyloric cecae of *M. dolomieu* were opened with a single longitudinal incision and preserved in the 10% neutral buffered formalin. Plugs of tissue with attached *L. thecatus* were removed and prepared for embedding in paraplast using conventional methods. The embedded specimens were sectioned at 10-µm intervals with an Olympus CUT 4060 retracting rotary microtome. Sections were mounted with 2.5% sodium silicate and stained with Delafield's hematoxylin and eosin. The histological sections allowed assessment of the pathology associated with individual worms at the cellular and tissue level. Damage of the tissues included tearing of the epithelial and lamina propria layers in both the intestine and pyloric cecae due to embedding of the proboscis. The damage observed in this study is of concern because of the frequency of *L. thecatus* in *M. dolomieu* and the importance of that fish host in fisheries.

Student: Tom Lansing

Faculty Sponsor: Sean Robinson (Biology)

Morphology and Biogeography of the *Adiantum pedatum* L. Complex (Pteridaceae) in New York State

Adiantum is a genus of fern in the Pteridaceae. Commonly known as maidenhair ferns, they are distributed throughout cool temperate regions of North America and eastern Asia as well as tropical regions of South America. Taxonomists recognize one species of *Adiantum* in New York State, *Adiantum pedatum*. *A. pedatum*, the northern maidenhair, is characterized by having a black stripe and fan-shaped blades with false indusia. It is found in damp woodlands and calcareous outcroppings. *A. aleuticum*, the western maidenhair, is found on serpentine outcrops and talus slopes in western North America. In addition, disjunct populations have been recorded in Pennsylvania, Maryland, West Virginia, and Michigan. A sterile hybrid between *A. pedatum* and *A. aleuticum*, *A. viridimontanum*, is found in isolated serpentine habitats in Vermont and Quebec. Given the eastern distribution of *A. aleuticum* and *A. viridimontanum*, I predict that populations of these two species may be present in New York State. Given similar environmental conditions, populations of these ferns are likely to be found in the northern part of the state as well as in the serpentine outcrops near Long Island. Specimens of *Adiantum* from northeastern herbaria and field sites throughout New York State will be analyzed in order to determine if populations of *A. pedatum* harbor individuals of *A. aleuticum* and/or *A. viridimontanum*. A total of 32 character states will be examined. A principal components analysis will be used to quantify the results of the morphological analysis. If populations of *A. aleuticum* and *A. viridimontanum* are indeed present in the New York, the State will have a new species record. This project is the first step in better delineating the biogeography and systematics of the *A. pedatum* Complex in eastern North America.

Student: Tom Lansing

Faculty Sponsors: Sean Robinson, Donna Vogler (Biology)

Flora of Mount Tom, NY

Plant distribution data are essential for understanding biodiversity. Floristic checklists serve as a means of monitoring invasive species, identifying unique ecological communities, and establishing the location of species of concern. Mount Tom is a Karst landscape located in the town of Springfield, New York. The area formed over a Devonian coral reef as an escarpment of the Panther Mountain Formation. The calcareous nature of Mount Tom facilitates unique communities of calciphilic plants. A series of field surveys were completed during summer 2011 to assess plant diversity on and directly adjacent to Mount Tom. Taxonomic, ecological, and geographic data were recorded for bryophyte and tracheophyte species. A total of 96 species of plants were recorded in 2011. A large population of the thallose liverwort, *Conocephalum conicum*, was found on the summit of Mount Tom. Calciphilic bryophytes recorded included *Tortella tortuosa*, *Radula complanata*, and *Seligeria campylopoda*. Mount Tom was found to have a high diversity of fern species uncommon to the rest of Otsego County. A small population of the uncommon *Asplenium rhizophyllum* was found adjacent to Mount Tom. The most unique plant species recorded was *Equisetum pratense*, a horsetail with severely limited distributions in New York. Data from this study will serve to better elucidate the species diversity and distribution of the New York flora. Future studies will consist of continued floristic surveys as well as gradient analysis of fern communities in the direct vicinity of Mount Tom.

Student: Tami LaPilusa

Faculty Sponsor: Jeffrey S. Heilveil (Biology)

Genetic Diversity of the Artisanal Fishery Species *Cardisoma guanhumi* Latreille (Decapoda: Gecarcinidae) on Andros Island, The Bahamas.

Cardisoma guanhumi Latreille, the blue land crab, is one of the species upon which the Androsian economy hinges. Decades of over-harvesting have caused a precipitous decline in the species. Little is known about the abundance and health of Androsian blue land crabs; even the number of populations on the island is unknown. The visually apparent decline in the number of crabs and the importance of

the species to the Androsian economy necessitated a study of the population structure and genetic diversity of *C. guanhumi* on Andros. Using DNA sequences from the nuclear gene arginine kinase and microsatellite markers, this study revealed that *C. guanhumi* on Andros Island comprise one island-wide population with limited genetic diversity.

Students: Carly Lauraine, Britiney Taylor

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Fat Substitution in Cupcakes with Black Bean Purée

This study assessed whether cupcakes with black bean purée as a fat replacer are as acceptable as regular full-fat cupcakes. The independent variable is black bean purée (25%, 50%, and 75% increments). The dependent variable is taste (mouthfeel), texture, color, and smell. The sample product is the chocolate cupcakes. The control cupcake, sample C, was made with the 100% fat specified in the recipe. For cupcake A, only 75% of the fat was added into the recipe (4½ T butter, 1½ black bean purée). Cupcake B was created with 50% of the fat (3T of butter and 3T of black bean purée). Cupcake D used only 25% of the fat and 75% of the puree (1½ tablespoons of butter and 4 ½ tablespoons of black bean purée). A Likert scale was utilized to reflect the assessment of the cupcakes. Twenty-six participants tasted the chocolate cupcakes, then evaluated mouthfeel, texture, color, and smell. According to the surveys, Sample A received the highest overall score; the second-favored chocolate cupcake was sample B; the third-favored was Sample C (control); and the least-favored cupcake was Sample D. The survey participants enjoyed a healthier version of the cupcakes than the original recipe.

Students: David Laureano, Joseph L. Milstein, Sean Bower, Kevin Sheehan, Andrew Turner

Faculty Sponsor: Narges Kasiri (Management, Marketing & Information Systems)

Contactless Payment Solution for Retailers

Customer satisfaction at retail stores is diminished when lines are at capacity during peak times, such as holiday seasons. A 2007 study by M/A/R/C Research found that when customers wait more than four minutes their loyalty is in jeopardy. Forty-three percent of customers surveyed said that long lines would affect their decision to shop at a certain store. Not only do long lines affect customer loyalty, they also affect the profitability of retailers. The longer lines are, the lower the customer turnover is, resulting in fewer checkouts. Our solution to this problem is using loyalty cards as a contactless payment card. Retailers will benefit from this innovation year round because it will increase checkout speed and customer turnover. Furthermore, the customers will appreciate this technology. Customers will spend less time waiting in line, thus promoting greater satisfaction levels and store loyalty. This project will have multiple steps before it can be fully implemented. We will do some research on contactless payment and figure out the cost of implementation. In addition, our team will conduct a cost-benefit analysis to determine the profitability of the project.

Student: Jonathan Levine

Faculty Sponsor: Hugh A. Gallagher, Jr. (Physics & Astronomy)

Determining Hall Conductivities from SuperDARN and IMAGE Magnetometer Data

Recent national attention to solar flares and solar coronal mass ejections, and their impact on space- and ground-based systems highlights the need for comprehensive understanding of solar-terrestrial interactions. The solar flow of the solar wind across the polar terrestrial magnetic field results in an electric field imposed on the ionized portion of the Earth's upper atmosphere (known as the ionosphere). This electric field drives electric currents that flow within the ionosphere and between the ionosphere and the outer regions of the Earth's magnetosphere. These currents are known as the Hall and Pederson currents. Pederson currents are mostly driven by the electric field, whereas the Hall currents are driven by a Lorentz force. In this study, we examine the relationship between the electric field imposed on the ionosphere by the solar wind and the resulting electric current. The electric field is determined by a network of high frequency radars. The electric current is inferred from ground-based magnetometer measurements. By comparing these two sets of observations, we are able to

deduce the ionospheric conductivity that results from the production of free electrons in the upper atmosphere. The application of this technique to current flow in the dusk sector will be discussed.

Student: Casey Lewis

Faculty Sponsor: Cynthia Falk (Cooperstown Graduate Program / History)

Damsels and Dresses: Elmira's Dressmaking Economy, 1880-1917

Damsels and Dresses explores the female dressmaking economy in Elmira, New York from 1880-1917. Topics discussed include the intricacies and nuances of the dressmaking trade, women who called themselves dressmakers and their stories, the effects of department stores and ready-made clothing on the dressmaking industry, and evolving fashions between the specified years.

Students: Michelle K. Linder, Marykate Kalotschke

Faculty Sponsor: Nancy Bachman (Biology)

Investigation of Aryl Aldimines as Fluorescent Biological Stains

Fluorescent dyes are widely used in the field of biology in order to visualize cells. First-rate fluorescent dyes have narrow wavelengths of emission and the ability to localize within cells, and are nontoxic; for instance, the commercial dye DAPI (4',6-diamidino-2-phenylindole) is a luminous, blue, nuclear stain. Numerous aryl aldimines synthesized by the BLONDES research group have fluorescent properties, making them potential agents for cellular visualization. Using fluorescent microscopy, mouse fibroblast (NIH 3T3) cells containing imine dilutions were imaged and analyzed. Preliminary results obtained from a 2011 study demonstrated that most imines localized to the lysosomes and/or endosomes, or to the endoplasmic reticulum. Results acquired from this second investigation were consistent with preliminary results. In addition, some newly screened compounds showed staining in the nuclear regions of the cells. Nevertheless, all of the imines analyzed thus far have had broad emission potentials, fluorescing both red and green (and sometimes blue), making them impractical commercial dyes; however, these compounds seem to be localizing and have been found to be relatively nontoxic. Further investigation will take place in the future in hopes of discovering a single-colored, innocuous fluorescent imine suitable for cell localization studies.

Student: Michael Lindquist

Faculty Sponsors: Michael J. Brown (Psychology), Christopher Keegan (Philosophy)

An Examination of the Knobe Effect Across Different Demographics

The Knobe Effect is the psychological phenomenon in which a person's perception of the intentionality of an action differs based upon whether the action had a positive or negative effect. This study recreates Knobe's initial experiment on the SUNY Oneonta campus, but adds demographic information in order to analyze the relationship between the survey items and the different demographic information provided. Demographic information for this study includes age, gender, race, religion, and academic major. This study will contribute to the ongoing research and critique of the Knobe Effect, which has helped to pave the way for the developing field of experimental philosophy. This study will philosophically examine the relationship between the Knobe Effect and how intentionality fits into how people make ethical and moral judgments. This study hopes to find results that demonstrate that one's demographics may have an effect on one's perception in terms of moral and ethical judgments.

Student: Edward Linsler

Faculty Sponsor: Donna Vogler (Biology)

Survey of Ash Trees in Wilber and Neahwa Parks, Oneonta, NY

The Emerald Ash Borer is an invasive pest that has expanded its range into several New York counties, including Orange, Ulster, Green, and Albany counties. This insect infests all species of ash trees and, in the process, kills the tree. While it has not yet reached Otsego County, there is little that can be done to prevent the continuing spread of the insect and the loss of Ash trees. Beyond the ecological damage to our forests, a sudden die-off of Ash trees creates potential risks for humans and infrastructure by limb falls.

Student: David Loveless

Faculty Sponsor: Melissa Godek (Earth & Atmospheric Sciences)

Classification of Snowfall Events in Oneonta, New York from 2002-2012

With approximately 80 inches of snowfall each winter over the past decade, Oneonta, NY is significantly impacted by seasonal snow events. Oneonta's situation between Albany and Binghamton makes it an interesting location to analyze snowfall, especially since daily snow records exist for this city, having been collected at SUNY Oneonta since 1982. Oneonta's position in upstate NY allows for snowfall from a variety of storm types including coastal storms, Nor-Easters and lake-effect storms. The goal of this research is to examine daily snowfall records in Oneonta over the past decade in order to identify the processes and storms that produce the most intense snowfall. The intensity of storms will be assessed through snowfall totals and frequency of snowfall days. Then, storms capable of producing daily snowfall will be identified. Classification of events will be done using daily weather map archives. The correlations between the type of storm and amount of snow produced will be calculated. Initial analyses will determine the influence of frontal versus non-frontal systems as well as low pressure systems on snow events. This knowledge should help forecasters with producing winter outlooks. Preliminary results indicate that lake-effect snowstorms most frequently produce snowfall in Oneonta.

Students: Duncan MacCrea, Mary Margaret Pipher

Faculty Sponsors: Keith Brunstad (Earth & Atmospheric Sciences), Frederick Zalatan (Biology)

Biomineralization of Gold and Heavy Metals from Mine Waste by Three Microbial Species

Remediation of mine waste is an important issue that has been considered for decades to improve environmental safety. In this pilot study we tested the biomineralization ability of several microbes to precipitate gold and heavy metals from solutions of gold chloride, copper sulfate, and water from the abandoned copper porphyry pit lake in Butte, MT. We hypothesized that if a microbe successfully precipitates gold and other heavy metals, the concentration of the dissolved metals would decrease in the solutions. Two bacterial strains (*B. cereus* and *C. crescentus*) and a yeast strain (*S. cerevisiae*) were inoculated into the three solutions and kept in the dark at 30°C for 11 days in 250-mL Erlenmeyer flasks. Samples were then filtered through 0.2-micron syringe filters. The filtrates were analyzed with ICP-OES and FA-AA, and the precipitates examined with SEM and EDS. In conclusion, biomineralization is dependent on the microbial species present and the initial concentrations of the solutions. Further experiments are planned to elucidate the capabilities of various bacteria and fungi to biomineralize gold and heavy metals as a method of bioremediation for polluted sites, and to determine if biomineralization is a cost-effective method of remediation or ore mineralization.

Student: Alyson Marmet

Faculty Sponsor: Jacqueline Bennett (Chemistry & Biochemistry)

Quantitative Comparison of the "Greenness" of the Ethyl Lactate Method of Imine Synthesis With Other Published Methods

Imines are important intermediates in the synthesis of many compounds, such as pharmaceutical products. Recently, a "green" method for synthesizing imines was discovered by our group that uses ethyl lactate, a renewable and biodegradable solvent approved by the FDA as a food additive. The traditional method for synthesizing imines is very time-inefficient and uses many more materials (water, heat, and excess solvents for purification) than our green method. By measuring the time, the amount of water used and the energy consumed, and by quantifying the amount of excess solvent and other organic compounds, I was able to determine the actual costs and impacts of performing five different traditional methods.

Students: Christiana Marron, Christina Craft

Faculty Sponsor: Keith Schillo (Biology)

Effects of Wheat Grass Juice on Blood Oxygenation During Exercise

There is growing interest in dietary supplements that promote health and fitness. Recently, investigators from another laboratory reported that ingestion of wheat grass juice within 20 minutes before exercise increased blood oxygen saturation. Unfortunately, the experiment was flawed in that subjects were aware of the treatments they received before exercising. We, therefore, chose to confirm these previous results by employing a blind experimental design. The experiment involved twenty male and female subjects. Each subject walked on a treadmill for 10 minutes at a speed and incline that required the individual to exercise at a level that required an oxygen consumption rate of 80% maximum (VO_2max). During the exercise period blood oxygen saturation and pulse rate were monitored using a pulse oximeter. Twenty minutes before the exercise period, ten of the subjects consumed the equivalent of 1,000 mg dehydrated wheat grass juice powder dissolved in 30 ml apple juice. The remaining ten subjects consumed 30 ml apple juice 20 min before exercise. Subjects were not told which treatment they received.

Students: Michaela Martin, Cynthia Restrepo, Dustin Smith, Brendan Whitney, Daisy Bilenkin, Kelly Callaghan, Alora Korb

Faculty Sponsor: Kenneth S. Walters (Psychology)

Relationship Difficulties Among College Students with Symptoms of Attention-Deficit / Hyperactivity Disorder

This study was designed to examine relationship difficulties among college students with continuing symptoms of Attention-Deficit/Hyperactivity Disorder (ADHD). Subjects included 1138 college students (396 men and 742 women), ranging in age from 18-24 years. Symptoms of ADHD (i.e., inattention and hyperactivity / impulsivity) were assessed using the Current Symptoms Scale (CSS). Based on normative data, subjects were then classified according to likely diagnostic status (i.e., normal vs. likely ADHD). Subjects then completed a set of five survey items designed to assess: (a) difficulty making friends, (b) difficulty keeping existing friends, (c) desire for more friends, (d) difficulty getting along with others, and (e) overall satisfaction with current relationships. Results indicated that ongoing ADHD symptoms were not significantly related to greater difficulty in making new friends. By contrast, students with symptoms of ADHD reported significantly more difficulty with maintaining existing friendships. In other words, these data indicate that keeping friends is a greater challenge for those with ADHD symptoms than making new friends. In addition, those with ADHD symptoms expressed greater desire for more friends, greater difficulty getting along with others, and less overall satisfaction with their current relationships.

Students: Stephanie May, Kayla Slater, Heather Brown, Clarinda Lain

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Maintaining Integrity of Gluten-Free Biscotti Using Rice and Buckwheat Flour

Some individuals cannot digest gluten due to the genetic disorder celiac disease, an inflammatory disease of the small intestine. The purpose of this research was to compare the use of various gluten-free flours in breads and doughs to maintain the integrity and texture of the original products that contain gluten. Buckwheat flour was tested in combination with other gluten-free flours to increase the protein strands structures which, in turn, will allow for improved texture and moisture content that is not found in other gluten-free doughs. Gluten-Free Biscotti will be produced using a mixture of gluten-free flours (rice and buckwheat) to make a product that is comparable to its counterparts that contain gluten. Each product will be evaluated based on the taste, integrity and shape, color, and overall consistency. The significance of this research is to provide and find a suitable alternative to flours used in baking products that contain gluten for gluten-free flours where product consistency, texture, taste and appearance will be comparable to that of the original based product. This research will allow those with gluten allergies or celiac disease to make and enjoy products that are usually not available to them.

Student: Kristine McPartlin
Faculty Sponsor: Yun-Jung Choi (Human Ecology)

Fashion Entrepreneurship – Wardrobe Styling

In the field of styling, people have been able to take their creative eye and find work in advertising, costume design, public appearances, and personal shopping. Essentially, they are experts on what look good, and when one establishes themselves in the styling field, whether it is for wardrobe, food, cars, or any of the other categories, they can be very well paid to know what looks good and what's going to sell. The purpose of my study is to prove the relevance of stylists, specifically fashion stylists. They play the important role in the fashion industry of the brains behind the beauty. I conducted my research using the qualitative research method. I have contacted numerous individuals who make up the back bone of the fashion industry and learned that many factors are in play within a fashion project. "Stylists are important, of course, but a finished product is dependent on many different people. Also, it depends on the product itself." This was the perception of a Junior Agent at a management agency, someone who deals with not only stylists, but bookings, photographers, clients, and editors. As an aspiring fashion stylist, the research done was a wonderful learning experience and provided plenty of valuable insight for my intended career. The entrepreneurship involved in styling is certainly no easy task. The product that one is selling is essentially their ability to work with others, but still showcase their "eye" in a unique way that meets the demands of the clients. Though teamwork is key, it definitely is the place of the stylist to take charge of the creative direction, which can make or break a product.

Student: Andrew Messina
Faculty Sponsor: Melissa Godek (Earth & Atmospheric Sciences)

An Examination of Meteorological Student Forecast Accuracy at SUNY Oneonta

Public-access weather forecasts are an integral part of the decision making process in today's society. Governmental decisions on transportation and personal decisions about attire depend on consultation with current and accurate forecasts. Forecasts for Oneonta, New York are readily available through government venues such as the National Weather Service, television broadcasts in major cities, and private forecasting outlets like The Weather Channel and Accuweather. Universities like SUNY Oneonta provide student forecasts on daily updated websites. With most forecasts originating over 80 miles from Oneonta (i.e., Albany and Binghamton), trained student forecasts made in the city of Oneonta are valuable. The goal of this research is to analyze SUNY Oneonta student forecast performance with verifications from weather observations obtained on campus. Weather variables assessed include twice-daily maximum and minimum temperature, rainfall and snowfall. Additionally, student forecasts prepared with different lead times, like the previous day, will be examined. Finally, student forecast accuracy will be compared to the National Weather Service and private companies to see if the forecasts made by students are more reliable for the city. Out of the 28 days of preliminary analysis, student forecasts were accurate to within 3° F of the observed maximum temperature 82.1% of the days.

Students: Nicole Mihou, Megan Record
Faculty Sponsor: Jacqueline Bennett (Chemistry & Biochemistry)

Computational and Experimental Analysis of Photochromic Salicylidene Anilines

Photochromism is defined as a change of color induced by light. Many salicylidene anilines are known to be either photochromic or thermochromic. The enol form undergoes a reversible transformation to the keto tautomer under certain wavelengths of light (photochromism) or temperatures (thermochromism). The color change is apparent when one tautomer has a different absorption range than the other. Since the enol form is more stable for salicylidene anilines, the photochromism is temporary, reverting to the color of the more stable enol within a few minutes. Gaussian 09 calculations were used to predict relative stabilities of the tautomers, as well as their predicted UV spectra using TD-DFT. The predictions were compared to experimental UV data and are being used to design keto tautomers with longer lifetimes. The aniline imines examined were those derived from salicylaldehyde and o-vanillin.

Students: Annelise Muscietta, Chelsea Krieg

Faculty Sponsor: Martha Growdon (Earth & Atmospheric Sciences)

Geologic History and Correlations of Rock Sequences on Matinicus, ME

Detailed bedrock geologic mapping of Matinicus Island, ME conducted in the summer of 2011 unveiled a complex tectonic and metamorphic history of the area. Petrographic analysis revealed amphibolite grade (~500-600ºC) metamorphic rocks consisting of alternating layers of quartzite, biotite schists, amphibolite, and rusty weathering phyllitic rocks of an unknown lithology. This work also documented microstructural evidence of a late shearing event, possibly related to faulting along the massive Norembega fault zone. The next phase of this research will be conducted in August 2012 and will attempt to correlate the rock sequences of Matinicus and the mainland. These correlations will help us apply the results of previous sedimentalogical research to the historical depositional environments of the metamorphic rocks on Matinicus. This research will help place the rock sequences of Matinicus in the lithotectonic framework of the New England Appalachians.

Students: Mary Nardella, Elizabeth Frawley, Danielle Denny

Faculty Sponsor: Charlene Christie (Psychology)

Benevolent Versus Hostile Sexism: The Differential Impact of Positive and Negative Gender Stereotypes

We examined whether sexist attitudes are impacted by the number and nature of gender stereotypes people recently thought about. Results revealed the number, negativity, and gender of stereotypes participants listed impacted responses on sexism measures. These results suggest that endorsement of sexist attitudes can be influenced by differential focus on stereotypes, even when they are not stereotypes they personally endorse. We then developed a list of responses from the subjects when they listed gender stereotypes. Stereotypes went into four categories: traits, roles, interests, and behaviors. Stereotypes then were framed into a scale format, with femininity and masculinity on each end. Subjects will be asked to rate the item on the scale. Rating an item neutrally will show a lack of stereotype endorsement. We hypothesize that more items will be rated "very masculine" or "very feminine," than neutrally, showing a high rate of stereotype endorsement. We also predict this will produce higher levels of sexism. Endorsement of positive stereotypes would be associated with higher levels of benevolent sexism, while endorsement of negative stereotypes would be associated with hostile sexism. Hostile sexism enforces traditional patriarchal views and benevolent sexism enforces positive stereotypes of men being dependent on women and needing women in their lives.

Student: Dylan Nealis

Faculty Sponsor: April Harper (History)

"The Memory of Arthur, That Most Renowned King, Will Endure Forever": The Establishment of a Legend and the Sanctioning of a Reign

The literary vitality that the Arthurian Matter continues to possess more than a millennium after Arthur's initial appearance in an early Medieval Welsh poem (c. 600) testifies to the legend's unique ability to engage and inspire the Western mind. And yet, King Arthur's tremendous impact upon the early modern and modern world pales in comparison to the authority it wielded during the High and Late Middle Ages, when the Arthurian Romances were omnipresent in the courts of northern Europe. The Early Medieval period had seen the gradual fashioning and refinement of the legend until the popularity of the stories surrounding Arthur's court reached a zenith in the twelfth century. The French and English courts of the latter half of the 12th century saw the rise of such famed Arthurian writers as Geoffrey of Monmouth, Chrétien de Troyes, Marie de France, and Gerald of Wales. These writers and their additions to the legend of Arthur transformed medieval culture, as the ideals of Camelot and the image of the virtuous and righteous King Arthur became archetypes towards which the nobility sincerely aspired. Beneath this cultural blossoming, however, is an essentially political catalyzing force. King Henry II, a monarch who singularly reshaped England's future through a series of political and military maneuvers that united all of the British Isles and half of modern day France, was at least partially responsible for the entire propagation of the Arthurian stories in the twelfth

century. A brilliant and cunning ruler, Henry almost certainly comprehended the intricate political implications of Arthur's legendary reign. As Henry undoubtedly recognized, these stories of the mythic King Arthur held the promise of creating a cultural ideology that justified his accumulation of ever-greater political power, and promised to unite his disgruntled and divided subjects.

Students: Brett Nicholas, Stephanie Spielberger, Emily Wood, Jennifer Hochberg, Erica Brooks, Alora Korb

Faculty Sponsor: Kenneth S. Walters (Psychology)

Cognitive Difficulties Among College Students Involved in Academic Tutoring Services

The purpose of this study was to determine whether college students who have ever received academic tutoring services demonstrate greater difficulties across multiple areas of cognitive functioning. Participants included 204 college students (91 men and 113 women), ranging in age from 18-24 years. Participants completed a survey instrument indicating whether they had ever engaged in academic tutoring services during college. Participants also completed a battery of cognitive testing assessing abilities in the areas of working memory, processing speed, and sustained attention. Those measures were derived from the Wechsler Adult Intelligence Scale - IV (WAIS-IV) and the Conners' Continuous Performance Test II (CPT-II). Results indicated that students who had engaged in tutoring services had poorer working memory, processing speed, and sustained attention ability, compared to those who had never received tutoring services. Those findings are discussed within the context of skills pertaining to college-level academic performance.

Student: William Oakes

Faculty Sponsor: Keith Brunstad (Earth & Atmospheric Sciences)

The Effects of Jointing on Natural Gas Drilling, Hydraulic Fracturing, and Ground Water Quality in Central Upstate New York

Directional drilling and associated hydraulic fracturing has become a controversial issue in northeast Pennsylvania and upstate New York. The main concerns are related to drinking-water contamination associated with deep reservoir methane, fracturing fluids, and deep saline waters brought to and handled at the surface. Here, we document outcrop data for the purpose of predicting the orientation of major joint sets at depth and compare this data to geomorphic lineations in the region. This comparison provides a way to distinguish between unloading joints formed near the surface as geomorphic lineations, and joints formed at or near maximum burial depth. The preliminary data presented here will enable us to evaluate the potential for near surface methane and contaminant flow associated with directional drilling and hydraulic fracturing in the Devonian rocks of the western portion of the Catskill Delta in central New York. Major geomorphic lineations determined from topography appear to correlate with the identified joint orientations. A statistical analysis will be performed to determine if the data is internally consistent and not random. The success of directional drilling and hydraulic fracturing depends on how environmental and ecological concerns are addressed. The information about jointing will provide constraints on fluid and gas flow pathways and allow gas drilling companies to locate appropriate sites where the impact on local groundwater wells are reduced. This will also help in monitoring environmental and ecological effects, and answer questions pertaining to the drilling and hydraulic fracturing process.

Students: James Orezzoli, Omar Burris

Faculty Sponsor: Kelly Gallagher (Chemistry & Biochemistry)

Secondary Structural Analysis of the CGI-112 Protein

Comparative gene identification isolate 112 (CGI-112) is a recently discovered human gene that encodes for a protein of unknown structure and function. Although the gene's proximal location and shared regulation with cytochrome oxidase originally suggested a potential role in mitochondrial electron transport, more recent studies have shown that CGI-112 may be involved in proteolysis or interact with the tetratricopeptide-repeat protein (TTC35), which implies an involvement in programmed cell death, cell division, and intracellular transport. Circular dichroism spectra of the

CGI-112 protein have been determined at several pH values to assess overall secondary structure content and stability. Our results are compared to predictions of secondary structure content produced using a variety of algorithms.

Students: Sean Perez, Daniel Giacovelli

Faculty Sponsor: Nancy Bachman (Biology)

HSF1 and p53 Interaction

Heat Shock Factor 1, the principle regulator of the heat shock response, is known to interact with p53, a critical tumor suppressor protein. Under DNA-damaging (genotoxic) conditions, p53 promotes the production of p21, a protein that inhibits cell division. This helps keep potential cancer cells from growing and multiplying. In order to examine this relationship, a vector control and different mutant isoforms of HSF1 alpha, and an HSF1 alpha mutant that can be activated without heat stress, were transfected into mouse NIH 3T3 cells. In the study, half the samples were then treated with the genotoxic chemical doxorubicin overnight, while half were untreated. Total RNA has been purified from the cells and will be analyzed by quantitative real-time PCR to compare levels of expression of p21, a target heat shock protein gene (hsp70.1), and a control gene (ribosomal protein gene S16). If HSF1 works in conjunction with p53 under genotoxic conditions, the hypothesis is that p21 levels will be elevated upon introduction of additional HSF1 alpha.

Student: Julianne Pettine

Faculty Sponsor: Elizabeth Seale (Sociology)

Birth Control Pressures from Service Providers on Low-Income Clients

There is a documented history of pressure on clients and patients in sexual and reproductive health settings by some health care professionals. Low-income individuals and minorities have been targeted in the past. This project aims to explore this occurrence and is focused on how low-income individuals have experienced encounters with health professionals and social workers when it comes to reproductive options. It also aims to explore the ways in which low-income individuals and couples in Otsego and Chenango Counties can develop more autonomy in terms of reproductive health services. This project consists of conducting interviews with low-income individuals by recruitment from the local Planned Parenthood.

Students: Amanda Podolec, Conor Tarbell

Faculty Sponsor: Paul Baumann (Geography)

Southwestern United States Drought Case Study: Lake Mead

Between 1999 and 2005 a major drought occurred in the Southwestern United States, the potential prelude of a mega-drought lasting up to 50 years. In the midst of this drought region is Lake Mead, the largest reservoir in the United States. Occupying 1.5 million acres and 820 miles of shoreline, Lake Mead is the heart of the Colorado River Basin. This reservoir supplies water to millions of people, irrigates large tracks of agricultural land and produces huge amounts of electricity through the Hoover Dam. During this drought the level of water in Lake Mead drastically decreased. This research project used satellite imagery from Landsat 5, for the years 1999, 2002, and 2005 to observe and measure this decrease. Decreasing water in reservoirs can be costly, making it that much more important to address the issue of water loss before the side effects become irreversible. The sustainability of Lake Mead was already compromised when the Colorado River Compact set the terms for how the water would be allocated; the flow was overestimated, causing more water to be drawn out of the reservoir than can be replenished.

Students: Christopher Postian, Daniel Rositano, Tara Weber, Aubrey Ellis, Christine McBurney, Justin Pizzani, Nicholas Trimper

Faculty Sponsors: Patrice Macaluso, Scott Segar, Andrew Kahl (Theatre)

Specialty Theatrical Properties: Design and Construction

The Specialty Properties Team was created to design and construct specific theatrical properties (props) for the spring production of *The Drowsy Chaperone*. As a team, they needed to solve technical and design problems that arose from the script, creating verisimilitude and cohesiveness among elements such as set design and costuming. Responsibilities for specific problems were taken on by individuals within the team. Projects included: a bookshelf holding fabricated theatrical memorabilia opening up to reveal a modified chaise lounge, a realistic refrigerator built to double as an entryway for actors, an actor-worn costume airplane, and a matching full-scale biplane, capable of holding twelve people, revealed in the final scenes of the musical. In order to begin this process, those involved had to thoroughly research the time period for the set pieces, and use what they found to design and draft a course of action for each project. They also had to coordinate with the Set Designer, Director, Technical Director, Costume Designer, Lighting Designer, and Props Master, as well as with their teammates in order to create a cohesive design. Once a proposal was approved, the team members could begin to construct their pieces. Come April 25–28 to see the finished product!

Student: Erin Potter

Faculty Sponsor: Melissa Godek (Earth & Atmospheric Sciences)

Assessing the Impact of Air Mass Frequency on Major Flood Events in the Susquehanna River Basin

Floods can have a significant impact on human populations, affecting business, industry, and natural resources. The Susquehanna River Basin (SRB) watershed contains approximately four million inhabitants within its confines. Warning times for floods are often too short and it can be difficult to predict exactly where and when a flood will occur. Therefore, it is important to improve flood forecasts in order to decrease the cost of damages and minimize loss of life. The goal of this project is to approach the issue of major flooding on a synoptic-climatological level by assessing air mass frequencies to determine the relationship between any one air mass type and the timing of major flooding. Air masses are defined by the Spatial Synoptic Classification and frequencies during significant floods over the past 20 years, including a seasonal assessment, are calculated to compare to the long-term period of record frequencies. Flood periods are identified using flood stage, crest, and stream flow. A statistical significance analysis of the results is performed. Ultimately, this information should improve flood forecasts since there is high skill in predicting air masses.

Student: Connie Randall

Faculty Sponsor: Sallie Han (Anthropology)

Finding the Red Tent: Birth and Menstruation in Archaeology

Birth and menstrual seclusion are known to have been practiced in various societies, with some cultures still practicing seclusion today. However, given all of the evidence for seclusion, why are we not finding these retreats in the archaeological record? This is important as there is a possibility that structures have been misinterpreted because the early western male scholars failed to recognize non-male spaces. Looking at ethnographic evidence that discusses seclusion practices and potential reasoning for seclusion in the form of taboos is vital to identifying retreat spaces. The artifacts from and locations of potential women's retreats can be looked at with the aid of these records to investigate the likelihood that an area was used for seclusion, and the questioned area actually being identified as such. This project aims to correct these biases and not only show that seclusion retreats can be detected archaeologically, but how it can be done. Some common indicators for seclusion retreats are: structures that are isolated and downstream from the main community, including the farming/hunting areas, as well as evidence of special eating/cooking utensils, and evidence of dietary restrictions due to the types of fauna and flora remains present.

Student: Emily Reed

Faculty Sponsor: Toke Knudsen (Mathematics, Computer Science & Statistics)

The History of Women in Mathematics

Even though women were discouraged, even forbidden, to study mathematics for centuries, female mathematicians have made contributions and influenced the development of mathematics. Their accomplishments often went unrecognized or were only accepted unofficially. The present study is a compilation of research conducted on women in mathematics. Through determination and perseverance, the number of women in mathematics has increased steadily, except for a decline in the middle of the 20th century, throughout the years leading up to the present.

Students: Katherine Reinhardt, Katherine Lawrence

Faculty Sponsor: Allan Green (Chemistry & Biochemistry)

The Effects of Dichloroacetate on Fat Metabolism

Our research focuses on glucose uptake and lactate production in fat cells of rodents. We isolated adipose tissue from the rodent and combined it with a buffer containing glucose after the digestion process was complete. We allowed a range of reaction times to compare glucose uptake levels in the presence of buffer with and without insulin. These samples were run in a spectrophotometer, and that data was then compared to a set of standards. From there the percentage of glucose uptake and insulin produced was calculated. To test the effects of dichloroacetate (DCA), samples were run containing the sample and compared to a controlled set. The purpose is to determine if we can manipulate lactate production by the use of DCA. DCA is a chemical compound that encourages pyruvate into the Krebs cycle. We are continuing our research of the effects of DCA on fat metabolism.

Students: Cynthia Restrepo, Dustin Smith, Brendan Whitney, Daisy Bilenkin, Kelly Callaghan, Alora Korb, Michaela Martin

Faculty Sponsor: Kenneth S. Walters (Psychology)

Relationship Difficulties and Decreased Social Support Among College Students with Symptoms of Borderline Personality Disorder

Persons with borderline personality disorder have difficulties with emotional instability and unstable relationship patterns. This study assessed social support and relationship difficulties among college students with symptoms of borderline personality disorder. A total of 675 college students (aged 18-24 years) were included in this study. Subjects completed the Personality Assessment Inventory, which includes a comprehensive measure of borderline personality symptoms. Those scoring greater than 1.5 standard deviations above the mean (using college student norms) were classified as having clinically elevated borderline personality symptoms. Those scoring at or below the mean were classified as "normal." Subjects completed survey items pertaining to relationship difficulties. Subjects also completed the Social Support Scale for College Students, yielding scores indicating social support in five areas: close friends, mother, father, instructors, and campus organizations. Results indicated that college students with symptoms of borderline personality disorder have a broad pattern of relationship difficulties. They expressed having fewer friends who care about them and greater difficulty getting along with others. Results further indicated lower social support among those with borderline personality symptoms. Results were discussed within the context of the known psychopathology of borderline personality disorder.

Student: Jared Reynolds

Faculty Sponsor: Alexander Thomas (Sociology)

The Ravena Case Study: A Booming Railroad Center to a Sleeping Bedroom Community, Ravena, NY

Using historical research and empirical interview data, this study concentrates on the initial growth of Ravena, NY (Albany County) and its subsequent decline. Through grounded theory, this case study was initially started to gather a general understanding of the history of Ravena, NY. Once begun, however, focus was turned specifically to Ravena's beginning as a "Booming Railroad Center" and,

subsequently, its transformation into a "Sleeping Bedroom Community." To collect data on Ravena's social, political, and geographical characteristics, I used historical documents and records from the Ravena Coeymans Historical Society's Museum and conducted interviews with ten Ravena residents. This study explains Ravena's transition from a prominent industrial community to its current status as a service oriented, bedroom community.

Students: Emily Reynolds, James McLaughlin, Greg Papalexis, Jin Kim

Faculty Sponsor: Shih-Ming Hu (Human Ecology)

Fat Replacers for Cheesecake

The main purpose of this study is to find alternative healthy substitutes as a fat replacer in cheesecake. This research will identify the acceptability of cheesecake using 25%, 50%, 75% and 100% Greek yogurt in place of the cream cheese as a fat replacer. This study will also allow us to identify the appearance, texture, taste and overall quality to the control cheesecake made with cream cheese as opposed to the Greek yogurt. The five types of cheesecake will be prepared using a popular traditional recipe. Through the sensory evaluation survey from the potential customers, the texture, appearance, taste and overall quality of the cheesecakes will be evalutated. The outcomes of this research will help to provide a healthy alternative that addresses the obesity issue by allowing people to still have their desserts, but a healthier version.

Student: William Rothwell

Faculty Sponsor: Jennifer Schlosser (Sociology)

Understanding the Relationship between Social Class and Types of Bullying

One of the biggest social problems facing the nation is bullying. On September 28, 2011, President Obama released a statement indicating that he is trying to provide information to victims and families so they are able to "push back" and fight bullying. Victimization via the internet or at school leaves teenagers feeling helpless, depressed, and scared. A great deal of research has been done on bullying, particularly in relation to sexuality (Taylor and Francis, 2003), depression (Salmon, James and Smith, 1998), and illness (Kivimaki, Elovaini and Vahtera, 2000). One topic that has not yet been fully studied, however, is the relationship between social class and the type of bullying to which students are exposed to in high school. This inductive study analyzes the relationship between students' social location and the type of bullying they encountered. Thirty undergraduate college students at SUNY Oneonta will be interviewed regarding their perceived social class, and the type of bullying to which they were most exposed.

Student: Margaret Ryan

Faculty Sponsors: Betty Wambui, Kathleen O'Mara
(Africana & Latino Studies / Women's & Gender Studies)

Women's Empowerment in Ethiopia and Land Reform

My presentation aims to serve as a simple overview of the issue of women's empowerment in Ethiopia with a special focus on Land Reform and why, despite its attempts, the Ethiopian government has failed to enact any great change in gender inequality and gender relations. I do not attempt to oversimplify or provide a solution to this complex issue; I merely note some of the possible reasons for its pervasive existence. I examine the roles of men and women in the domestic sphere and within society, and how power disparities translate into the public, working sphere.

Student: Joanna Salvino

Faculty Sponsor: Jeffrey S. Heilveil (Biology)

Post Flooding Impacts on Gene Flow in an Urban Population of *Nigronia serricornis* (Say: Megaloptera corydalidae)

Natural disasters are phenomena that are often assumed to be negative because of their geographical destruction (Lindell & Prater 2003). From an organismal standpoint, disasters such as flooding are natural processes and may be beneficial by providing rapid dispersal between and genetic exchange

among populations. For aquatic organisms with weak dispersal patterns, like *Nigronia serricornis* (Say), the saw-combed fishfly, increased flow rates could provide assisted migration, especially in areas with restricted gene flow. Prior to flooding caused by Hurricane Irene, *N. serricornis* larvae were collected from four urbanized sites roughly 10 km apart, near Albany, NY. Data from mtDNA sequences showed that these populations exhibited low rates of gene flow, and two hydrologically connected sites were significantly differentiated. Post-flood samples were collected from the same sites, and mtDNA sequences and newly developed microsatellite markers were used to compare changes in gene flow patterns after the flooding. Implications for the management of urban populations will be discussed.

Student: William Schwab

Faculty Sponsor: Joseph P. Chiang (Chemistry & Biochemistry)

Discussion of Medical Waste Treatment

The research and presentation on the survey and discussion of non-radioactive medical waste treatments resulted from an undergraduate research activity. This will call for the attention of the general public to be aware of the importance of such treatments. Treatment of non-radioactive medical wastes can be classified into two categories: incineration and non-incineration treatments. For incineration treatment, thermal treatment is involved; the wastes are under combustion and waste materials will be converted into ash, gas and solids. This process involves energy (heat) and products (residues). The toxic gases need to be carefully handled; solids can be handled much more easily. For non-incineration processes, low-temperature thermal treatment, autoclaves, steam-based technologies, microwave systems, and dielectric heating will be discussed. In chemical process treatments, several technologies will be discussed, such as chlorination and decomposition. Biological processes, which employ enzymes to destroy organic or biological matter, will be introduced very briefly.

Student: William Schwab

Faculty Sponsor: Joseph P. Chiang (Chemistry & Biochemistry)

TiO_2 Synthesis

Nano-technology is an up-and-coming field of research. TiO_2 nano-crystals have been heavily researched for different syntheses and purity rates. They have many benefits, such as improvement of solar panels and delivery systems of chemotherapy drugs. I will present the different ways of synthesizing these nano-crystals, by microwave and autoclave, and the purity rate of each.

Students: Dustin Smith, Brendan Whitney, Daisy Bilenkin, Kelly Callaghan, Alora Korb, Michaela Martin, Cynthia Restrepo

Faculty Sponsor: Kenneth Walters (Psychology)

Predicting College Student Binge Drinking Using the Five-Factor Model

This study used measures of personality facets within the Five-Factor Model to discriminate among different patterns of college student drinking. A total of 1169 college students initially participated in this study (aged 18-24 years). Subjects completed the Daily Drinking Questionnaire – Revised (DDQ-R), indicating their average daily drinking patterns (Monday through Sunday), in standard drinks. Participants were categorized into four different drinking groups: non-drinkers (i.e., consuming no alcohol), moderate drinkers (consuming at or below the mean for the college student population), binge drinkers (those who drink five or more drinks on any single day during the average week), and heavy binge drinkers (those binge drinkers with total weekly alcohol consumption equal to or greater than 1.5 standard deviations above the mean for the college student population). Participants completed the NEO-PI-3. Facet-level scores pertaining to Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness were used in a discriminant function analysis to predict membership in the above-described drinking groups. Results indicated two significant discriminant functions that correctly classified students into their drinking groups at a rate significantly greater than chance. Those functions were described within the context of the Five-Factor Model and existing literature on college student drinking.

Students: Carlos Soto, Christopher Bax

Faculty Sponsor: Fred Zalatan (Biology)

Genes and Gene Products Involved in Bacterial Fatty Acid Transport

Fatty acids are essential for all organisms, including bacteria. Many bacteria have an outer membrane as well as a cell membrane, and compounds such as fatty acids often cannot simply diffuse through these layers; they must be specifically transported in by protein complexes. Our project involves characterizing genes that code for proteins involved in this transport, as well as studying the kinetics of the proteins involved in this process. One long-term goal is to determine if fatty acid transport can be inhibited by certain compounds, which may lead to a novel method of bacterial growth control.

Students: Stephanie Spielberger, Emily Wood, Jennifer Hochberg, Erica Brooks, Brett Nicholas, Alora Korb

Faculty Sponsor: Kenneth S. Walters (Psychology)

Cognitive Factors Predicting Functional Academic Difficulties Among College Students

This study tested a model using a set of measured cognitive abilities to predict functional indicators of academic difficulty among college students. Participants included 207 college students (92 men and 115 women) aged 18-24 years. Students completed a set of survey items indicating whether they had ever experienced a variety of academic difficulties (i.e., academic probation, failing or dropping or repeating a course, and receiving either tutoring or Student Disability Services). A composite variable was then calculated, as the sum total of all functional academic difficulties reported. Subjects also participated in a cognitive assessment battery, which included measures of working memory, processing speed, focused-selective attention, and poor behavioral inhibition (i.e., impulsivity). Those included measures from the Wechsler Adult Intelligence Scale-IV (WAIS-IV) and the Stroop Color and Word Test. A multiple regression analysis produced a model in which the set of cognitive variables significantly accounted for functional academic difficulties. Students with greater academic difficulties tended to have poorer abilities in the areas of working memory, processing speed, focused-selective attention, and behavioral inhibition.

Student: Rachel M. Stevenson

Faculty Sponsor: Jeffrey S. Heilveil (Biology)

Development of Short Tandem Repeat (STR) Markers for *Nigronia serricornis* Say (Megaloptera: Corydalidae) and Their Use in a Comparative Phylogeography

In the field of genetics, there are many different regions of DNA that can tell us about the individual from which the DNA is extracted, including the identity of the individual, the population of origin, the relationships between populations, and overall lineage of both the individuals and the population as a whole. One highly informative DNA marker currently used is the microsatellite, a region of DNA containing Short Tandem Repeats (STR), which occur at a higher rate than would occur in the genome by chance. Repeated motifs have been found in every species tested so far, making them a versatile tool regardless of the species. One limitation of these markers is that the loci containing the marker must be isolated and identified for each species; there are no universal STR markers, as there are with other types of markers. To design markers for *Nigronia serricornis*, we used a modification of Lyons-Sobaski and Beever's (2006) genomic enrichment protocol. The markers designed were then used to compare the amount of genetic diversity revealed by the newly-developed markers with those from DNA sequences of the mitochondrial gene Cytochrome Oxidase I found by Heilveil and Berlocher (2006). As mitochondrial DNA (including the COI gene) is passed along only from the maternal lineage and has a slow rate of mutation, we predicted that microsatellite variation would be much greater. Extracted DNA was obtained for the individuals used by Heilveil and Berlocher (2006) to allow a direct comparison of genetic diversity. Five populations (N=18 individuals per population) were used for the comparison. Two informative (polymorphic) STRs were tested on all samples obtained. The genetic structures of the populations were then compared using the STRs against the (COI) data.

Student: Joe Stressler

Faculty Sponsor: Donna Vogler (Biology)

***Cirsium palustre*: Distribution Mapping and Spread of Newly Invasive Thistle**

The European Marsh Thistle, *Cirsium palustre*, is a species of plant that is not native to North America. It has spread throughout several states in the United States, including Michigan, Wisconsin, New York, Massachusetts, and Vermont. This invasive plant can be found in roadside ditches, pastures, and wetlands. It invades natural wetland habitats, threatening the diversity of the natural environment. The European Marsh Thistle has the potential to spread into areas throughout the northern hemisphere, with warm summers and cold winters, across North America. In the summer of 2011 a survey of *C. palustre* was conducted in Otsego County and the adjacent counties including Madison, Chenango, Delaware, Herkimer, and Schoharie Counties. At the locations where populations of European Marsh Thistle were observed, the coordinates were recorded using a global positioning system (GPS). A map was created using the iMapInvasives website to display the current extent of the European Marsh Thistle. These data were used in ArcGIS to create a predictive model of distributions should *C. palustre* spread. The model uses habitat type, slope, and soil type to predict where this thistle can potentially invade. This model is a resource for the management of the *C. palustre* plants in the future.

Student: Scott Suriano

Faculty Sponsors: Martha Haynes, Riccardo Giovanelli (Cornell University Astronomy Department)

Galaxy Properties in ZwCl-1400.4+0949

We present a multiwavelength analysis of the properties of galaxies in and around the rich group/poor cluster known as Zw1440.4+0949 (also known as WBL 486 and MKW12), located at RA:14h, Dec:+09°. We examine large-scale structure in the region and determine cluster membership. HI scaling relations in the region are compared to a larger sample in the surrounding field, and to an even larger sample of optically targeted surveys. The galaxies in the group show very similar ranges of physical properties compared to larger samples of field galaxies, suggesting that the environment of Zw1400.4+0940 has had less of an impact on its members than one might expect. Neutral hydrogen data, derived from the 21cm line, are compiled from the ALFALFA survey. Optical data and physical properties are obtained from the "Data Catalogues from SDSS studies at MPA/JHU." The derivations of physical properties in the catalog, especially stellar masses, are compared to other earlier developed methods. It is found that there are systematic offsets in a number of physical properties when different methods of calculation are used. The fundamental differences between galaxies detected by ALFA and galaxies detected by the Sloan Digital Sky Survey are examined, showing that, as one may expected, ALFA galaxies are a subset of the types of galaxies found by the SDSS.

Students: Jocelynn Thommen, Mary Nardella

Faculty Sponsor: Rebecca Harrington (Office of Health Services)

Student Perceptions of Condom Brands

The purpose of this research was to explore how branding affects male condom choice and perceptions about brand quality amongst undergraduate students. A small sample of students completed a brand questionnaire based on brand marketing research and completed two tasks with unwrapped condoms (one visual-only, one touch-only) to see if students could properly identify condoms when they were not in branded wrappers.

Student: Amanda Traube

Faculty Sponsor: Michael J. Brown (Psychology)

Attributions of Plaintiffs' Affect in Sexual Harassment Cases

Prior research suggests that online interactions have the potential to evoke emotional responses that are similar to those in in-person interactions. Thus, harassment that takes place online may be just as distressing as harassment that takes place in-person; however, it may not always be viewed as so. We were interested in whether participants perceive certain aspects of a sexual harassment case

differently while envisioning themselves in the plaintiff's position. Participants (N = 240) were asked to read a trial transcript involving a case on online vs. in-person sexual harassment. Participants then completed a questionnaire relating to their perceptions of the case and the parties involved. In general, participants were less likely to rate that the defendant was "only joking," and that they would have enjoyed the defendant's behavior if the harassment had happened to them rather than the actual plaintiff; however, effect sizes were larger when the harassment occurred online. Overall, our results suggest that people may make a fundamental attribution error when evaluating cases of online sexual harassment. Participants showed a tendency to rate the online sexually harassing behaviors as less serious when they happened to the plaintiff than if they were to happen to the participants themselves.

Students: Apryl Tynan, Kris Stafford

Faculty Sponsor: Paul Baumann (Geography)

Southwest Drought of United States 1999-2004: Lake Powell Study Area

Drought conditions occur at various times throughout the world. This study analyzes the drought that took place from 1999 through 2004 in Southwestern United States. Located on the Colorado River, Lake Powell, the second largest reservoir in the United States, was used to study this drought. It provides fresh water for 1.6 million homes in the Southwest, hydroelectricity for the major cities in Arizona and California, and irrigation water for many of the farms in the region. Landsat imagery was used to measure the percent of water loss in the area of Lake Powell during this drought.

Student: Ireri Vasquez

Faculty Sponsor: Betty Wambui (Africana & Latino Studies / Women's & Gender Studies)

In Search of A Third Space

My mother did not want me at her house, the school did not want me to stay on campus and so, as spring break drew closer, I wondered where I would go. During my freshman year when I was not on campus, in a homeless shelter, in a shelter for women of domestic violence, or at a friend's house, I was agonizing over where to go next. I wanted to feel safe, secure and accepted; I just wanted a home. My journey of finding a "third space" took me from the cove of my family through the writings of Gloria Anzaldua and into creating my own home. I will use her writing to explain the diaspora, of how a home can be created in a globalized world where family is affected by immigration, migration, economic status, gender, and violence in patriarchal society. It has been my experience that building a stable society is like building a house: it cannot be changed by using the same materials, but only by using different materials for a stronger foundation.

Students: Sarah Vitro, Molly Hassett

Faculty Sponsor: Sean Robinson (Biology)

Insect and Fungal Diversity of a Hardwood Forest in Oneonta, NY

Insect and fungal diversity are important to an ecosystem's health. It has been shown that decreased soil biodiversity results in soil community stability loss as well as possible losses in ecosystem functioning. We surveyed eleven 100 m^2 plots for insect and fungi species on the Red Trail to College Camp. Areas in the plots were randomly selected and cleared of leaf litter. Visible insects and fungi were collected. All of the plots could have been mixed conifer/hardwood, although four plots were "conifer" and three plots were "disturbance," based on fungi species needs. In plots where more fungi were found, higher community diversity was shown. The fungi species-area curve showed a high diversity within the ecosystem, even though not all fungi collected were identified. From plot 5 to plot 9, there was a steady increase in insect species. The insect species-area curve shows that there is high ecosystem diversity. Insects could only be identified as far as family level, although different species were distinguished. Since collections began in October, there was less diversity than in warmer months, and results for the last plots may have been affected as the first frost had passed.

Students: Nathan Weber, Christopher Cure, Nicholas Esposito

Faculty Sponsor: Paul Baumann (Geography)

A Comparative Study of the New York and Philadelphia Urban Heat Islands

Nearly sixty-five percent of the Earth's population resides in urban places. In the United States, forty-three percent of the population lives in the twenty-five largest metropolitan areas. One out of every eight Americans is located in the country's two largest metropolitan areas of New York City and Los Angeles. The high-density conditions associated with urban landscapes have created unique physical environments. One of these environments is an urban heat island, which by definition is a result of the high-density land cover, creating an environment significantly warmer than the surrounding rural areas. Many of these urban environments are emerging into major super-cities known as megalopolises. The best known megalopolis is the one along the east coast of the U.S., extending from Boston to Washington, D.C. This study examines the urban heat islands of the two largest cities within this megalopolis, namely New York City and Philadelphia. Thermal infrared imaging from the Landsat remote sensing satellite was used in this study.

Students: Bruce Wemple, Tara Weber

Faculty Sponsor: Nathaniel Bouman (Communication Arts)

***The Archer*: A Short Comedy**

The Archer is a student-written and -produced comedy film about a man who has a strong passion for archery, but absolutely no capability in the sport. When he is challenged by a co-worker to hit a target across a gym or lose everything, things escalate into a potentially fatal situation.

Student: Katherine Whitcomb

Faculty Sponsor: Tracy Allen (Geography)

Baseline Surface Water Quality Data for Otsego County, NY Prior to Natural Gas Exploration

The purpose of this project was to establish baseline water characteristic data for Otsego County, NY, prior to natural gas exploration. Natural gas extraction through hydraulic fracturing poses a serious water and health contamination threat to Otsego County. Gas extraction has the potential to contaminate both surface and ground water with chemicals used for hydraulic fracturing, as well as from salts and sediments. I have established baseline surface water data for pH, temperature, conductivity, dissolved solids, salinity, dissolved oxygen, and benthic invertebrate communities. This data will serve as a control for future water quality testing in order to determine if natural gas drilling contaminates Otsego County's water. I have worked with the Otsego County Conservation Association (OCCA) and the Otsego County Soil and Water Conservation District (SWCD), which have established fifty testing sites on streams throughout Otsego County. I tested each of these sites biweekly during the summer months, and then downloaded the data at the OCCA office. I then created Excel spreadsheets and graphs to be made available to the public. I have completed my goal to establish baseline data in order to provide solid evidence of any changes in water quality, if it should be summoned.

Students: Brendan Whitney, Daisy Bilenkin, Kelly Callaghan, Alora Korb, Michaela Martin, Cynthia Restrepo, Dustin Smith

Faculty Sponsor: Kenneth S. Walters (Psychology)

Anger Control Styles and Aggressive Behaviors Among College Students: A Test of the Five-Factor Model

The purpose of this study was to test a model of anger control styles, proposed by Costa and McCrae (2010). The model specifies four anger control styles, based on the traits of neuroticism and agreeableness (i.e., Temperamental, Cold-Blooded, Timid, and Easy-Going). A total of 1169 college students participated in this study (aged 18 to 24 years). From those, 152 students were used in the final data analyses. Subjects completed the NEO-Personality Inventory-3, including measures of the traits of neuroticism and agreeableness. Subjects were grouped into one of four anger control styles,

based on neuroticism and agreeableness scores: Temperamental (high neuroticism, low agreeableness), Cold-Blooded (low neuroticism, low agreeableness), Timid (high neuroticism, high agreeableness), and Easy-Going (low neuroticism, high agreeableness). Subjects completed the Personality Assessment Inventory, including a general scale measuring aggressive behavior and subscales pertaining to aggressive attitude, verbal aggression, and physical aggression. Results indicated that the Temperamental group was broadly more aggressive than the other three groups on all measures of aggression. In addition, the Cold-Blooded group was broadly more aggressive than both the Timid and Easy-Going groups, which consistently expressed fairly low levels of aggression. The results were discussed within the broader context of the Five-Factor Model.

Student: Danielle Willsey

Faculty Sponsor: Florian Reyda (Biology / Biological Field Station)

A New Tapeworm Species from *Dasyatis zugei* (Pale-Edged Stingray) from Coastal Malaysian Borneo

The study is part of a large, ongoing survey of parasites, including cestodes, from elasmobranchs in Borneo. In this study, examination of four individual *Dasyatis zugei* resulted in collections of several cestode species, including specimens representing a new genus and species of a rhinebothriidean cestode. Examination of specimens with both light microscopy and scanning electron microscopy revealed the presence of several unique characteristics. These features include the arrangement of loculi on the bothridia. A combination of longitudinally- and transversely-oriented septa occur on each bothridium, resulting in a combination of vertically- and horizontally-oriented loculi, a feature not previously observed among rhinebothriidean cestode genera. Other morphological features were measured and used to distinguish this genus and species, such as the dimensions of the bothridia, number of loculi per bothridium, microthrix patterns, and terminal proglottid features. This study, like similar ones from the Borneo survey work, indicates that every time an elasmobranch species is examined for the first time parasitologically, such as *D. zugei*, new cestode species are discovered.

Student: Keon Wilson

Faculty Sponsor: Laura Munteanu (Mathematics, Computer Science & Statistics)

N-Gons in Absolute Geometry

Archimedes' analysis of π involves regular inscribed and circumscribed polygons in Euclidean Geometry. In this project, we consider the possibility of extending this approach to Non-Euclidean geometries. In particular, hyperbolic and spherical trigonometry will be discussed.

Students: Keon Wilson, Ireri Vasquez, Margaret Ryan, Lauren Johnson

Faculty Sponsor: Betty Wambui (Africana & Latino Studies / Women's & Gender Studies)

A "New" Negro Genesis in Harlem: 1865–1929

Certain factors occur prior to the Harlem Renaissance that one must address before one can reasonably understand Harlem's negro genesis. We have found the events that occur around 1865–1920 of great importance in understanding the eventual proliferation of the "new" Negro in New York City. In fact, it is necessary to understand the forces that guided and shaped this "renaissance," and it is plausible to conjecture that a "renaissance" may have not occurred or, in fact, may have occurred to a greater or lesser extent if it were not for the constraints and significant influences that contributed to its development. By and large, Negroes from all walks of life were assimilated into Harlem under a firmament of socio-economic blight; however, during the 20th century, Negro resilience, enlightenment and creative transcendence had been the driving forces by which a "renaissance" was unleashed after World War I until the Stock Market crashed in 1929. The issues and events explored in this paper focus on racial hostility, white departure verses black arrival, the historical socio-economic situation of the period, and possible conclusions as to why black relocation led to Jewish migration out of Harlem in regards to the upwardly mobile demographic post-World War I. Ultimately, this study aims to measure the repercussions of forces that led to the Harlem Renaissance, and the overall impact of its ramifications in the African Diaspora today.

Students: Emily Wood, Jennifer Hochberg, Erica Brooks, Brett Nicholas, Stephanie Spielberger

Faculty Sponsor: Kenneth S. Walters (Psychology)

College Students with Ongoing Conduct Problems: Assessment of Behavioral Inhibition and Impulsivity

This study investigated the relationship between poor behavioral inhibition (i.e., impulsivity) and the tendency toward continued conduct problems among college students. Participants included 153 college students (62 men and 91 women) aged 18-24 years. Ongoing conduct problems were assessed with a set of survey items pertaining to various problematic behaviors, including: stealing, physical fighting, driving offenses, drug-related activities, academic dishonesty, and college disciplinary action. Scores on those survey items were summed to form a single quantitative measure of ongoing conduct problems. Subjects were then formed into two groups, representing those with and without ongoing conduct problems. Subjects also participated in a cognitive assessment battery, which included measures indicative of poor behavioral inhibition (i.e., impulsivity). Those included measures from both the Conners' Continuous Performance Test II (CPT-II) and the Stroop Color and Word Test. Rather than demonstrating increased impulsivity, results indicated that students with ongoing conduct problems actually demonstrated a pattern of lower impulsivity (i.e., greater behavioral inhibition), compared to those without conduct problems. Findings were consistent with a more controlled and calculating disposition, such as is characteristic of sociopathic behavior.

Student: Crystal Young

Faculty Sponsor: Michael J. Brown (Psychology)

Juror Perceptions of Online Sexual Harassment Cases

This study examines mock juror decisions in cases of hostile work environment sexual harassment. Participants (N=240) were asked to read a trial transcript in which the plaintiff was suing her former employer for wrongful termination after exposing sexual harassment by a supervisor. The environment in which the harassment took place was manipulated to reflect an in-person or an online scenario. Participants rendered a verdict and completed a series of measures relating to their perceptions of the case and of the parties involved. Overall, participants were less likely to find the defendant guilty, and awarded lower amounts in damages to the plaintiff, when the harassment took place online rather than in-person. Participants rated the defendant less responsible, and his behaviors as less serious, in online cases of harassment. Participants also found the plaintiff more responsible, more likely to have overreacted, and more likely to have misunderstood the defendant's intentions when the harassment took place online rather than in-person. Implications of the results for social and legal policy will be discussed.

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