Schedule of Events

(WAR) Warfield Hall, Allen Auditorium (SC1) Science Center Auditorium
(SC2L) Science Center Second Floor Front Lobby (BOG) Bogigian Gallery

8:30 to 9:15 a.m. **SESSION ONE (WAR)**
Welcome Address by Professor Larry Shillock
Moderated by Ashley Overdorff, '12

8:30 **Marsha Decker, '12**
Contextual Influence as Evidence of an Integrative Model of Speech Perception

8:45 **Debra Tibbits, '12**
Trauma and Its Effects on Physical and Cognitive Resilience

9:00 **Tammy L. C. Clark, '12**
Treatment Seeking Barriers for African Americans

SESSION TWO (SC1)
Welcome Address by Dean Mary Hendrickson
Moderated by Chelsea Krebs, '13

8:30 **Ciera Rhodes, '12**
Effects of 17α-ethinyl estradiol on hard clam (*Mercenaria mercenaria*) immunity and QPX (Quahog Parasite Unknown) Infection

8:45 **Ashley E. Wetzel, '12**
Home Range Size and Habitat Use of Andean Bears (*Tremarctos ornatus*) in the Intag Region of Northern Ecuador

9:00 **Brinita Ricks, '12**
A Comparative Analysis of the Efficiency of Multi-trials of the Warner and Simmons Randomized Response Techniques

Schedule of Events (continued)

9:30 to 10:15 a.m. **SESSION ONE (WAR)**
Moderated by Tammy L. C. Clark, '12

9:30 **Ashley Overdorff, '12**
Effects of Ego-Depletion and Resource Beliefs on a Cognitive Task

9:45 **Destinee Hays, '12**
The Effects of Music on a Simple Multiplication Task

10:00 **Jenna Jamison Yeager, '12**
The Effects of Sleep Deprivation and Distractibility on Cognitive Performance

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SESSION TWO (SC1)
Moderated by Janelle Wills, '13

9:30 **Emilee Beidel, '12**
An Application of the Optimal Defense Theory: Analyzing the Defenses of A Marine Sponge, *Axinella polycapella*, Against Predatory Reef Fish

9:45 **Laura M. Beck, '12**
A Measure of Electrolyte Containing Sports Drinks: Effects on Physiological Parameters Before, During, and After Exercise

10:00 **Colleen O'Reilly, '12**
The Influence of Barrel Size and Swing on Rider's Hip and Weight Placement

Schedule of Events (continued)

10:30 to 11:15 a.m. **SESSION ONE (WAR)**
Moderated by Angella Dagenhart, '13

10:30 **Courtney Wolfe, '12**
Breaking the Mold

10:45 **Jessica Carnes, '12**
Folly

11:00 **Christina J. Giacomini, '12**
Past of a Unicorn

SESSION TWO (SC1)

Moderated by Connie Goodwin, '13

10:30 **Alyssa Bernard, '12**
Antimicrobial Effects of Essential Oils for the Control of Oral Bacteria in the Prevention of Periodontal Disease in Canines

10:45 **Briana Doscher, '12**
Effect of High Folic Acid Serum Concentration Through Diet Fortification and Supplementation on the Development of Rats

11:00 **Chelsea Varner, '12**
Analysis of the Relationship Between Fetal Microchimerism Cells in the Spleen and Liver and the Presence and Severity of Idiopathic Thrombocytopenic Purpura

Schedule of Events (continued)

11:30 a.m. to 12:15 p.m. **SESSION ONE (WAR)**
Moderated by Brie-Anne Asbury, '12

11:30 **Hayley Glass, '12**
Justice Brennan and Obscenity

11:50 **Jessica Carpenter, '12**
Making and Breaking Rules: Wilson College Student Government Minutes from 1924-1927

SESSION TWO (SC1)
Moderated by Rachael Kinley, '13

11:30 **Lois L. Collingwood, '12**
Connecting Pennsylvania to the Chesapeake Bay

11:40 **Amanda A. Keggereis, '12**
Dam Removal Stream Assessment

11:50 **Davidson Mayer, '12**
The Legitimacy of TMDL Under the CWA

12:00 **Kacie Oberholzer, '12**
A VMT International Internship

12:15 to 1:00 p.m. **LUNCH RECESS**

Schedule of Events (continued)

1:00 to 2:30 p.m.

STUDENT ART EXHIBIT (BOG)

Lauren Dieffenbach, '12
Reverie

Laura Harmyk, '12
To View the World

Painting by Lauren Dieffenbach, Class of 2012, from her exhibit ***Reverie***.

POSTER SESSION (SC2L)

April C. Davila, '13
Walter Benjamin's Theory of an Object: the Same is the Same is the Same

Crystal L. Ellgass, '13
Van Gogh *To Go*: Mass Produced Products Brandishing Great Works of Art for Profit and Portability

Dianna L. Hollada (M.A. Humanities program)
The Modern Subaltern: The Occupy Movement as Gramscian Revolution

Emma N. Lewis (M.A. Humanities program)
Media Propaganda of Today: Rupert Murdoch's News Corp

Jessie R. Stockwell (Teacher Intern Program)
Roland Barthes' 'Myths' and Marcellus Shale Ad Campaigns

Carol A. Zehosky, '12
Herman and Chomsky's Filters in the Limbaugh and Fluke News Story

Schedule of Events (continued)

1:00 to 2:30 p.m.

POSTER SESSION
Science Center, Second Floor Front Lobby

1 **Monica Lyons, '13**
The Metal Absorption in *Ulothrix Zonata* from Sediment Contaminated with Acid Mine Drainage

2 **Ovsanna Movsesyan, '13**
Analysis on Concentrations of Estrogen and Testosterone in African Clawed Frogs (*Xenopus laevis*) Treated with a Combination of Trihalomethanes and Haloacetic Acid

3 **Aneshia Knepper, '13**
Familial Grouping of Female *Odocoileus virginianus* in a Hunted Environment

4 **Rachael Kinley, '13**
An Analysis of the Effectiveness of Neodymium as a Shark Deterrent for Use in the Atlantic Pelagic Longline Fishing Industry to Reduce the Bycatch of Atlantic Shark Species

5 **Chelsey Smentkowski, '13**
The Effect of Posilac on the Concentration of Insulin-like Growth Factor-1 (IGF-1) Concentration in Bovine Milk and Serum

6 **Chelsea Krebs, '13**
The Effect of Semen Extenders on the Viability of Equine Spermatozoa

7 **Kelly Hughes Antonucci, '13**
Effect of Two Extraction Methods on Antibacterial Properties of Essential Oils Derived from *Salvia officinalis* and *Corchorus olitorius*

Schedule of Events (continued)

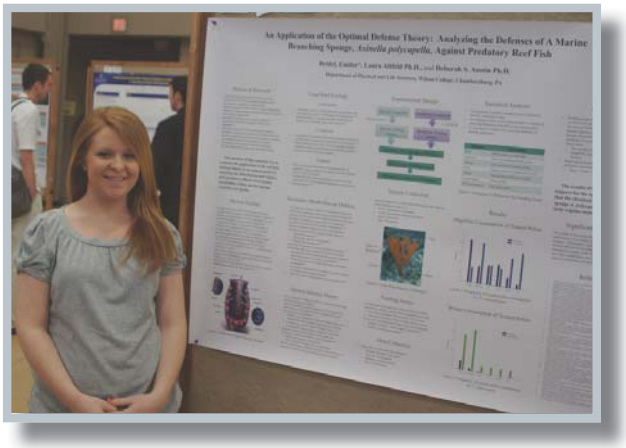
POSTER SESSION
Science Center, Second Floor Front Lobby

8 **Brianna Smith, '13**
The Effects of Antibiotics Versus Homeopathic Remedies on the Bacterium *Borrelia burgdorferi*, the Causal Agent of Lyme Disease

9 **Connie Goodwin, '13**
Antimicrobial Activity of L-Amino Acid Oxidase from Different Snake Venoms

10 **Kayla Croft, '13**
The Efficacy of Vitamin K Supplementation when Administered with and without Recombinant Factor IX on the Treatment of Hemophilia B in a Mouse Model

11 **Shyanne Stouffer, '13**
Adeno-Associated Viral Gene Therapy in the Post-Neonatal Murine Model with Methylmalonic Acidemia



Emilee Beidel, '12, presenting her research findings at the 2012 Annual Meeting of the Pennsylvania Academy of Science.

Schedule of Events (continued)

2:30 to 3:15 p.m. **SESSION ONE (WAR)**
Moderated by Amanda Stup

2:30 **Laura Harmyk, '12**
To View the World

2:50 **Lauren Dieffenbach, '12**
Reverie

SESSION TWO (SC1)
Moderated by Professor Laura F. Altfeld

2:30 **Alicia Mills, '12**
Menhaden: The Most Important Fish in the Sea?

2:45 **Tina Brown, '12**
Residual Pharmaceuticals in Drinking Water

3:00 **Katherine Riep, '12**
Improving the Conococheague Creek at Wilson College: A Plan to Encourage Self-Sustaining Brook Trout Populations

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3:30 to 4:30 p.m. **HONORS SESSION (SC1)**
Moderated by Professor Laura F. Altfeld

3:30 **Sierra A. Schnable, '12**
Exploring the Role of Women's Colleges in Shaping Feminist Consciousness

3:50 **Lori Fedorczyk, '12**
Social Reorganization in Female Mice and Its Impact on Hippocampal Function

4:10 **Tonya J. Bender, '12**
Characterization of Algae Bio-oil Produced by Microwave-Assisted Pyrolysis: A Study of the Potential for Algae Bio-oil as an Alternative Fuel Source

Schedule of Events (continued)

4:45 to 5:15 p.m. **DISERT SCHOLAR PRESENTATION (SC1)**
Moderated by Professor Robert K. Dickson

Alyssa Hockenberry, '12
Short Circuit: The Art of Jasper Johns and Robert Rauschenberg

5:15 to 6:00 p.m. **DISERT SCHOLAR RECEPTION**
Science Center, First Floor Front Lobby

6:00 to 7:00 p.m. **ACADEMIC AWARDS CEREMONY**
Science Center Auditorium

From left, Wilson students Tonya Bender, Ashley Wetzel, Ciera Rhodes, Emilee Beidel, Briana Doscher, Chelsea Varner, Alyssa Bernard, Laura Beck and Lori Fedorczyk. All presented their research at the 2012 Annual Meeting of the Pennsylvania Academy of Science.

APRIL 27, 2012

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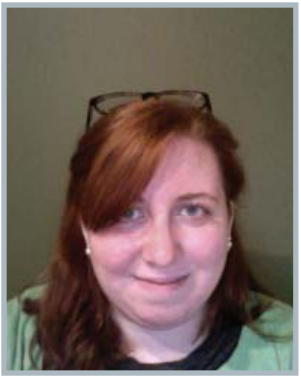

ALYSSA HOCKENBERRY

Senior, Class of 2012

Fine Arts (Art History)

Robert K. Dickson, Philip Lindsey and Lisa Woolley

DISERT SCHOLAR

Short Circuit: The Art of Jasper Johns and Robert Rauschenberg

Robert Rauschenberg and Jasper Johns supported each other's art during the time that they were in an intimate relationship in the 1950s and early 1960s. For years there has been a verbal debate over the artistic exchange between Johns and Rauschenberg during their time together. The modernist supporters of Johns discredit the effects of the relationship for fear that the influence will diminish perceptions of Johns' originality. The post-modernist supporters of Rauschenberg maintain the effects are undeniable. It is here that I will bridge this chasm and maintain that Johns and Rauschenberg had a significant artistic exchange while creating original works of art. This will be proven through the examination and analysis of the subtle and fundamental elements of their pieces during their involvement and the identification of the overlaps and exchanges. Through a close examination and analysis of works it is clear that Rauschenberg's use of white numbers influenced Johns' use of white numbers and John's use of plaster casts of body parts influenced Rauschenberg's use of taxidermy. Johns also began a long-term discussion on the idea of paradox in art, which Rauschenberg responded to, which caused Johns to respond to Rauschenberg. The influence did not stop when the relationship ended as we can see a lasting influence in both artists' works.

LAURA M. BECK

Senior, Class of 2012

Biology

Brad E. Engle and M. Dana Harriger

A Measure of Electrolyte Containing Sports Drinks: Effects on Physiological Parameters Before, During, and After Exercise

Electrolyte-containing sports drinks replace electrolytes and fluids which are lost during exercise through perspiration. Studies indicate that their consumption decreases dehydration and maximizes aerobic performance during a period of exercise due to electrolyte content. The increased hydration levels result in decreased heart rate, blood pressure, and respiration rate. This study measured the effects of sports drinks on these physiological parameters before, during, and after intense exercise. Five Wilson College student-athletes and faculty were enrolled in this study and were required to consume a specified amount of drink, normalized for each participant, during each exercise session. Hydration, heart rate, blood pressure, and respiration rate were measured before, during, and after exercise at each session. Three different drinks were consumed: water and two formulations of Gatorade, G2Pro which contains high electrolyte amounts and G2 which contains lower electrolyte levels. It is expected that the highest electrolyte content will be the most effective in maintaining hydration and have the most positive impact on the physiological parameters. Results of this study will be analyzed using a MANOVA and will help us better understand the impact that electrolytes have on physiological parameters during exercise.

EMILEE BEIDEL

Senior, Class of 2012

Biology & Business

Laura F. Altfeld and Deborah S. Austin

An Application of the Optimal Defense Theory: Analyzing the Defenses of A Marine Sponge, *Axinella polycapella*, Against Predatory Reef Fish

Sponges are one of the earliest multicellular organisms still in existence. Although lacking specialized systems, nerves, and musculature, sponges are highly adaptive to harsh ecological variables present within their natural environments. Ecological threats such as competition, predation, and biofouling are especially prevalent in Caribbean coral reef communities where sponge populations thrive. As is common with many marine invertebrates, sponges lack obvious mechanisms of protection and therefore may employ species-specific physical or chemical defenses. Spicules, a sponge structural component, are a proposed source of physical defense. Additionally sponges may also implement chemical defenses in the form of secondary metabolites. The purpose of this research is to first determine the primary defense implemented by the branching sponge Axinella polycapella. The optimal defense theory, stating that organisms allocate defenses to best promote individual fitness, will then be applied to explicate the intra-specimen variation of defense distribution within the sponge. Feeding assays with Holacanthus tricolor and Thalassoma bifasciatum will be conducted to determine the efficacy of each defense against natural predators. Chemical deterrence is the hypothesized primary means of defense. In accordance with the optimal defense theory, the secondary metabolites are expected to be most concentrated in the branch tips of *Axinella polycapella*.

TONYA J. BENDER

Senior, Class of 2012

Chemistry

Catherine T. Santai and Deborah S. Austin

HONORS in the Major

Characterization of Algae Bio-oil Produced by Microwave-Assisted Pyrolysis: A Study of the Potential for Algae Bio-oil as an Alternative Fuel Source

Algae are a fast growing, renewable, and sustainable source of biomass feedstock. Algae biomass can be converted into bio-oil through a process known as microwave-assisted pyrolysis (MAP), a type of thermolysis requiring temperatures between 500-700oC in the absence of oxygen. Algae-derived bio-oils have been shown to have comparable physical properties of petroleum diesel, including density, viscosity, and higher heating value (HHV). During this research algae biomass collected from mono and mixed cultures were each subjected to MAP, in which different algae-derived bio-oils were produced. Two mono cultures included the species *Chlorella vulgaris* and *Scenedesmus*, and two mixed cultures included a filamentous green algae mixture and a green microalgae mixture. The algae-derived bio-oils were characterized in terms of density, viscosity, and higher heating value (HHV). HHV is a measure of the heat of combustion determined using bomb calorimetry. Physical properties of algae-derived bio-oils are compared with those of biodiesel prepared by the Department of Environmental Studies at Wilson College and with commercial grade diesel. The results from this study provide support for the use of algae biomass as an alternative fuel source.

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CONNIE GOODWIN

Junior

Chemistry

Catherine T. Santai, M. Dana Harriger and Brad G. Stiles

Antimicrobial Activity of L-Amino Acid Oxidase from Different Snake Venoms

Recent evidence suggests that L-Amino acid Oxidase (LAO) is a key enzyme responsible for the antimicrobial properties of some biological fluids where it catalyzes the deamination of L-Amino acids producing antimicrobial byproducts. It has been found in natural fluids such as lactated milk originating from mammary glands, epidermal mucus secreted by some fish species and significant quantities can also be found in nearly all snake venoms. The LAO originating from snake venom is an increasing area of biochemical research. This research will focus on the isolation and purification of LAO from different snake venoms and the efficacy of purified LAO as an antimicrobial agent. The concentration of LAO which can be purified from the venom of selected Viperdae (common name) and Elapidae (common name) snake species will be compared. The purified LAO enzyme will then be tested for potency as a topical antimicrobial agent against *Staphylococcus aureus*, *Bacillus subtillis*, *Escherichia Coli* and *Salmonella typhimurium* bacteria strains that are pathogenic to humans. A comparison of LAO purified from wild and captive venomous snakes within a species will also be performed. This study will help to determine if there is a trend towards impotency as measured by lower concentration of LAO in venom of captive versus wild snakes and the possible use of LAO derived from snake venoms as antimicrobial agents.

ALYSSA J. BERNARD

Senior, Class of 2012

Biology

M. Dana Harriger and Brad G. Stiles

Antimicrobial Effects of Essential Oils for the Control of Oral Bacteria in the Prevention of Periodontal Disease in Canines

Periodontal disease affects any breed of dog, and if left untreated, can result in life-threatening complications. This disease is initiated by aerobic bacteria in the canine mouth that grow just beneath the gumline. These bacteria remove oxygen from this niche, enabling the subsequent growth of anaerobic bacteria that can become very tissue destructive. There are four stages associated with periodontal disease, but the first stage, gingivitis, is reversible. Essential oils from anise seed, myrrh, spearmint, and clove bud possess antimicrobial properties against aerobic bacteria. This study investigated essential oil-based inhibition of problem causing bacteria. The Kirby-Bauer Disc Diffusion Assay was used to test each oil at various dilutions for inhibition of aerobic bacterial growth using pure cultures of *Escherichia coli*, *Neisseria canis* and *Staphylococcus epidermidis*, as well as mixed cultures from whippet gingival/tooth samples. Data were analyzed using a Two Way ANOVA, which compared the dilution of each oil with the diameter of inhibition. Results demonstrated that clove bud oil was the most effective, even at the lowest concentration, while myrrh oil was the least effective. Results of this study suggest that essential oils might be an effective alternative against aerobic bacteria accumulation in the mouth leading to periodontal disease.

BRIANA DOSCHER

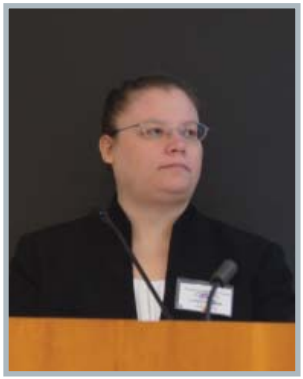
Senior, Class of 2012

Biology

M. Dana Harriger, Brad E. Engle and Catherine T. Santai

Effect of High Folic Acid Serum Concentration Through Diet Fortification and Supplementation on the Development of Rats

Supplementation and fortification with folic acid (vitamin B9) before conception decreases incidence of neurological birth defects. U.S. grains are fortified with folic acid. Surveys indicate 5% of the population consumes folic acid above upper intake levels (1000µg). However, effects of high serum levels of folic acid through fortified diets or supplementation on development is not widely known. Studies have shown that high concentrations of folic acid in the diet can cause developmental defects. This study investigated if in utero exposure to high concentrations of folic acid through diet and supplementation contributes to developmental and cardiac anomalies. Female SAS-SD rats were bred and maintained on their prescribed diet regimen throughout the pregnancy. Dams received folic acid at varying concentrations for six weeks prior to and throughout pregnancy. The control group received a normal 3mg/kg, supplemented group 20mg/kg via oral gavage, fortified diet group 20mg/kg, and the combination which received both for 40mg/kg. Dams were mated and the pups were analyzed at 9-11 days post-partum. Hearts were digitized and a comparative morphometric analysis where wall thickness of ventricles, septum, and aorta were measured. Results of this study may be indicative of abnormalities associated with fortification of folic acid in diets during pregnancy.



LORI FEDORCZYK

Second Major, Class of 2012

Biology

Brad E. Engle, M. Dana Harriger and Carl F. Larson

HONORS in the Major

Social Reorganization in Female Mice and Its Impact on Hippocampal Function

Social reorganization with male mice has produced toxic effects after exposure to an influenza virus. Studies to elucidate the mechanism have focused on immunological effects, leaving out the potential neurological impact from repeated activation of the hypothalamic-pituitary-adrenal (HPA) axis. Corticosteroids released during the stress response have a significant impact on the hippocampus, a region of the brain noted for learning and memory. The current study focused on the neurological impact of social disruption in the murine model, C57BL/6J. Groups of female mice were reorganized every other day over three different time frames (1, 2, or 4 weeks). Physiological parameters, hippocampal function (Morris Water Maze), and social behavior (ethogram and grooming) were assessed in comparison to mice left in their home cage. Preliminary data suggest impaired hippocampal function and altered social behavior among socially disrupted groups. Plasma corticosterone levels (ELISA) and hippocampal glucocorticoid receptor concentrations (immunohistofluorescence) are also being evaluated. Extension of the primary research used enrichment activities to examine the possibility of reversing adverse effects over a four week period. Results are expected to contribute to the body of research on the negative impact of social reorganization and potentially suggest a method for mitigating those effects.

CIERA RHODES

Senior, Class of 2012

Biology

Laura F. Altfeld, Brad E. Engle and Bassem Allam

Effects of 17α-ethinyl estradiol on hard clam (*Mercenaria mercenaria*) immunity and QPX (Quahog Parasite Unknown) Infection

Quahog Parasite Unknown (QPX) is a protistan parasite of hard clams, *M. mercenaria*, and has caused significant mortality of wild and cultured clams in northeastern United States. The QPX organism does not typically cause disease until there is an extreme environmental stress that reduces the ability of clams to fight infection. This study was designed to investigate the effects of synthetic estrogen, 17α-ethynyl estradiol, on QPX-induced immune responses in *M. mercenaria*. Clams were separated into 4 groups: control, estrogen (125 ng/L), QPX (New York strain, 8BC7), and estrogen/ QPX, and were maintained at 18°C for 2 months. QPX- specific cell- mediated and humoral defense parameters were assessed after 1 and 2 months. Measured parameters included total and differential hemocyte counts (flow cytometry), reactive oxygen species (ROS) production (NBT colorimetric assay), phagocytosis activity (fluorescent bead assay), and lysozyme activity and protein concentration in plasma (spectrophotometric assay; BCA protein assay). Preliminary results demonstrated a decrease in immune function, with the estrogen/QPX group showing the greatest decrease in granulocytes. Phagocytosis, ROS, and lysozome activity and protein concentration are currently being analyzed. Decreases in all immune parameters are expected demonstrating the immune-suppressive activities of synthetic estrogen and QPX parasitism.

CHELSEA VARNER

Senior, Class of 2012

Biology

Brad E. Engle, Catherine T. Santai and Michael J. Doenhoff

Analysis of the Relationship Between Fetal Microchimerism Cells in the Spleen and Liver and the Presence and Severity of Idiopathic Thrombocytopenic Purpura

Cells from the fetus that cross over the placenta during pregnancy and remain within the mother's body are known as Fetal Microchimerism cells (FMc). Idiopathic Thrombocytopenic Purpura (ITP), an autoimmune disease which destroys platelets in the body, often occurs in the presence of Hashimoto's Thyroiditis (HT). Since previous research has shown a correlation between FMc and HT, this study investigated a potential link between ITP and FMc in maternal mice. Breeding colonies were established by crossing Enhanced Green Fluorescent Protein (EGFP) possessing males with normal C57BL/6 females. The females were then allowed time for gestation and weaning of their pups. Using a rabbit anti-mouse platelet antiserum (RAMPS), the females were induced for thrombocytopenia to mimic ITP for 7 days in one group and 14 days in another. The females were then sacrificed and spleens removed. The organ was digested and the splenocytes visualized using a fluorescence microscope. Preliminary results have shown that the ratio of FMc cells to splenocytes is greater in those induced for thrombocytopenia. These findings indicate a relationship between the degree of platelet destruction and FMc cell concentration in maternal mice; therefore suggesting that FMc cells may play a role in ITP development.

ASHLEY E. WETZEL

Senior, Class of 2012

Biology

Laura F. Altfeld, Deborah S. Austin and Céleste F. Barthel

Home Range Size and Habitat Use of Andean Bears (*Tremarctos ornatus*) in the Intag Region of Northern Ecuador

The Andean bear (*Tremarctos ornatus*) is one of many large mammals threatened by habitat loss and human conflict. In Northern Ecuador and throughout their geographic range, populations are becoming fragmented due to agricultural growth. Based on habitat loss and bear-human conflict, Andean bear populations are expected to diminish by approximately 30% in the next 30 years. To prevent further population declines, ecological research is necessary. In the Intag Region of Northern Ecuador, six adult Andean bears have been captured and fitted with radio collars. While interning with the Andean Bear Foundation, bear locations were tracked by taking bearings from designated listening stations. Using ArcGIS mapping software, bear locations were determined by triangulation and habitat use was analyzed. Home range sizes were estimated using the Local Convex Hull Method for Utilization Distribution by means of GIS. Starting from the perimeters of each home range, percentages of every type of available habitat were calculated by means of ArcGIS. Using home range maps created using GIS, home range overlap with human developed areas and road ways will be analyzed, in order to better understand bear-human conflict. Based on previous studies and a rise in bear-cattle conflict, an increase in human-bear overlap is expected.

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KELLYSUE HUGHES ANTONUCCI

Junior

Biology

Catherine T. Santai and Brad E. Engle

Effect of Two Extraction Methods on Antibacterial Properties of Essential Oils Derived from *Salvia officinalis* and *Corchorus olitorius*

Homeopathic remedies have been used throughout the centuries for many different types of aliments and infections. Today more and more people are using homeopathic remedies instead of prescription drugs. Understanding how these homeopathic remedies work against different types of bacterial infections has become more important. This study seeks to determine if the antibacterial effectiveness of a homeopathic essential oil extracted from a plant depends upon the method of extraction. Two different methods of removing the oil from the plants will be investigated. Microwave-assisted pyrolysis is one methodology to be utilized and involves exposure of plant leaves to high temperatures (400-500*C) in the absence of oxygen to vaporize the lipid components and ultimately create a bio-oil. The second methodology will utilize no elevation in temperature, but will include exposure of plant leaves to organic solvent in order to extract the oil. Two different plant species, *Corchorus olitorius* (jute mallow) and *Salvia officinalis* (common sage) with known antibacterial properties will be tested against two different types of bacteria: *Escherichia coli* and *Staphylococcus aureus*. Two different methods of oil extraction are being tested to determine if the method chosen to extract the essential oil from different plants has any effect on the antibacterial properties the plant may contain.

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KAYLA CROFT

Junior

Biology

Brad E. Engle and Catherine T. Santai

The Efficacy of Vitamin K Supplementation when Administered with and without Recombinant Factor IX on the Treatment of Hemophilia B in a Mouse Model

Hemophilia B is a bleeding disorder that varies in severity in which the blood does not clot normally and is missing or lacking clotting factor IX. Hemophilia B can be treated with human plasma derived factor IX or recombinant factor IX. Vitamin K plays an important role in blood clotting because it is involved in the biosynthesis of a number of blood coagulation factors, such as clotting factors II (Prothrombin), VII, IX, and X. The primary objective of this research is to determine whether vitamin K supplementation has any therapeutic value for hemophilia B patients when administered with and without recombinant factor IX. Hemophilia B mice with a range of mutations in the factor IX gene, comparable to the type of mutations that cause hemophilia B in the human population, will be used in this study. There will be five treatment groups of hemophilia B mice: 2 control groups, 1 group of mice treated with just recombinant factor IX, 1 group treated with just vitamin K supplement, and 1 group treated with both. Over a course of six weeks at the end of one week, a blood sample would be taken and then tested for their blood clotting time. After the six weeks, the blooding clotting time should decrease when given vitamin k supplementation with or without recombinant factor IX.

RACHAEL KINLEY

Junior

Biology & Environmental Studies

Laura F. Altfeld and Edward Wells

An Analysis of the Effectiveness of Neodymium as a Shark Deterrent for Use in the Atlantic Pelagic Longline Fishing Industry to Reduce the Bycatch of Atlantic Shark Species

Shark populations are rapidly declining as large numbers are caught as incidental bycatch and experience high mortality rates after release. Finding ways to reduce shark bycatch in the pelagic longline fishing industry has, therefore, become a conservation priority. Toward that effort, electropositive metals have been shown to deter sharks from fishing gear because of the interaction between the electropositive charges released when these metals oxidize in seawater and the sensitive electroreception of the shark. The highly sensitive electro-receptive structures, ampullae of Lorenzini, can easily detect the electrical current given off by electropositive metals reacting in seawater. The goals of this experiment are to quantify the electrical current output of neodymium, an electropositive metal, submerged in artificial seawater and then compare the observed values to known values of maximum current detection previously observed in a variety of shark species. The deterrent ability of neodymium on wild shark species will also be tested in the field using fishing trials, where baited lines with and without a neodymium metal plate will be cast into the water and catch frequencies compared. The results of this study may promote further research to determine other electropositive metals that can be used as successful shark deterrents and whether further research into the possible success of Neodymium in the pelagic longline fishing industry on a larger scale is worthwhile.

ANESHIA KNEPPER
Junior
Biology
Laura F. Altfeld and Deborah S. Austin

Familial Grouping of Female *Odocoileus virginianus* in a Hunted Environment

This research will be evaluating mitochondrial DNA of *Odocoileus virginianus*, or white-tailed deer to examine the relatedness of females in a hunted area. This is relevant because it is important to the population that female white-tailed deer form familial groups to prevent females from dispersing, ensuring reproduction in the area, and ensuring the overall health of the population. Feces will be collected from a highly hunted area, a natural game preserve, and a human controlled deer farm in order to compare the DNA extracted from the scat to the different populations. This study will be useful in game management and evaluating genetic health in the population.

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CHELSEA KREBS

Junior

Biology

M. Dana Harriger, Deborah S. Austin and Sharon Hanna

The Effect of Semen Extenders on the Viability of Equine Spermatozoa

Semen extenders are liquid diluents that are added to semen following collection to preserve the fertilizing ability of the sperm. Extenders maintain the normal physiology of the sperm cell and are a source of energy for the sperm, a source of protection against bacteria, and also a source of protection against damage to the sperm cell. With the use of extenders, semen can be shipped from the location of the male to the location of the female species. Since the use of artificial insemination (AI) is becoming more and more popular in the equine realm, the stallion and mare never have to be in the same proximity because the semen can be shipped. This process instead of natural insemination prevents any injuries from happening to either the stallion or mare and it also prevents inbreeding. The purpose of this experimental study is to determine how INRA 96, E-Z Mixin' CST, Equipro, and AndroMed-E equine extenders affect the viability of equine sperm over a period of 48 hours. The study will simulate the shipping process; sperm and extender samples will be placed in a thermal cooler with an ice pack to maintain the temperature at 5oC. Following this experimental study, equine breeders, veterinarians, and owners will have a better knowledge of which extender maintains the greatest extent or degree of viability of the sperm cell.

MONICA LYONS
Junior
Biology
Brad E. Engle and Deborah S. Austin

The Metal Absorption in *Ulothrix Zonata* from Sediment Contaminated with Acid Mine Drainage

Acid mine drainage is an environmental quality issue for many states including Pennsylvania. There are several ways to remove the acid mine drainage from the streams; however, it can be quite expensive. Research shows that adding algae to streams can help to reduce the amount of acid mine drainage and aid in remediation of the contaminated water and sediments. There have been studies to determine how much metal algae can absorb from the water in the streams, but there have not been any studies done to determine how much metal is absorbed from the sediment. *Ulothrix zonata* will be used to determine the amount of metal that can be absorbed from sediment contaminated with acid mine drainage. *Ulothrix* will be exposed to five conditions, in triplicate. An atomic absorption spectrophotometer will be used to determine the amount of zinc, iron, manganese, and aluminum absorbed by the algae. The results should show that the metal in the sediment will have a significant rate on absorption from in the *Ulothrix*. That the water may not be contaminated, but the *Ulothrix* will still be able to absorb metal from the stream.

OVSANNA MOVSESYAN

Junior

Biology

M. Dana Harriger and Laura F. Altfeld

Analysis on Concentrations of Estrogen and Testosterone in African Clawed Frogs (*Xenopus laevis*) Treated with a Combination of Trihalomethanes and Haloacetic Acid

Water is life's most basic need — life on Earth depends on water. It is highly important to drink and use clean water. Water disinfection is an important process since it chemically deactivates growth and reproduction of pathogenic microorganisms that could cause serious waterborne diseases such as cholera, thyroid fever, Hepatitis A or E etc. (Percival, 2004). The most widely used process for water disinfection treatment in the US is chlorination. The main advantage of using chlorine as a disinfectant is that after treatment, the water can contain chlorine residuals, which helps to protect the quality of drinking water throughout the distribution system. Chlorination is also cost-effective. The maximum allowable level of chlorine in drinking water is 4.0mg/L. Having high levels of Cl2 in the treatment process could lead to potential eye and nose irritations (SDWA, 2009). The problem with chlorination is the production of DBPs (Disinfection by-products). Trihalomethanes (THMs) and Haloacetic acids (HAA5) are groups of DBPs that can be possible endocrine disruptor chemicals (EDC) (Brinbaum, Fenton, 2003). In many cases, large quantities of EDCs target the steroid nuclear receptor family of transcription factors, and mimic natural receptor ligands (Norris, James, 2006). There are many studies related to endocrine disruptors and their kinetic reactions during water disinfection treatments. This study mainly focuses on the effects of chloroform and iodoform (HAA) on the concentrations of estradiol (E2) and testosterone in African clawed frogs (*Xenopus laevis*).

CHELSEY SMENTKOWSKI
Junior
Biology
M. Dana Harriger and Deborah S. Austin

The Effect of Posilac on the Concentration of Insulin-like Growth Factor-1 (IGF-1) Concentration in Bovine Milk and Serum

Posilac, a growth hormone used to increase milk yield in dairy cattle, has been suspected of causing harm to humans who consume dairy products produced by affected cattle. Posilac has recently been linked to both colon and breast cancer in humans. Posilac, also known as recombinant bovine somatotropin, will be administered to measure its influence on the levels of insulin-like growth factor-I (IGF-1) in serum and milk of lactating dairy cattle. Cattle from two types of productive dairy farms, organic and commercial, will be utilized in this study. Four experimental commercial cattle will receive a 500 mg subcutaneous injection every two weeks for a six week period. Eight control cattle, organic and commercial, will not receive an injection. Blood and milk samples will be collected one week after injection, throughout the test period, and analyzed for IGF-1 levels. It is expected that Posilac treated cattle will produce elevated levels of IGF-1. This would demonstrate that non-treated cattle, either commercial or organic, would produce lower concentrations of IGF-1, making their product safer to humans who choose to consume them.

BRIANNA SMITH
Junior
Biology
Laura F. Altfeld and Edward Wells

The Effects of Antibiotics Versus Homeopathic Remedies on the Bacterium *Borrelia burgdorferi*, the Causal Agent of Lyme Disease

Lyme disease is major health concern in the U.S. The disease is caused by the bacterium *Borrelia burgdorferi*, a pathogenic gram-negative spirochete vectored by ticks and which forms a biofilm that is difficult to eliminate with antibiotics. Medical researchers have long studied the effects of antibiotics on bacterial growth. However, given concerns about the negative side-effects of antibiotic use, attention is now being paid to how homeopathic remedies may also be effective. The homeopathic remedies under consideration include the use of Samento, Banderol, and Sarsaparilla. This experiment is designed to compare the effectiveness of Doxycycline, Zithromax, and amoxicillin with Samento, Banderol, and Sarsaparilla at limiting *B. burgdorferi* growth using Kirby-Bauer disc diffusion assays. If homeopathic remedies can be found to effectively inhibit bacterial growth, they may represent a less harmful treatment of Lyme disease.

SHYANNE STOUFFER
Junior
Biology
Brad E. Engle and Catherine T. Santai

Adeno-Associated Viral Gene Therapy in the Post-Neonatal Murine Model with Methylmalonic Acidemia

Methylmalonic acidemia is a genetic condition caused by deficient activity of the mitochondrial enzyme methylmalonyl-CoA mutase[1-4]. Methylmalonic acidemia is associated with a lethal metabolic uncertainty and carries a poor scenario for long-term survival. A mouse model of methylmalonic acidemia, that replicates the most severe phenotype will be used to determine the efficiency of the recombinant adeno-associated virus (rAAV8) gene therapy[1, 3-5]. Lifespan, bodyweight, heart rate, respiration rate, circulating metabolites, as well as neutrophil and platelet counts will be examined as outcome parameters after the use of gene therapy and/or dietary modification[1, 3]. This research is an extension of previous research which used adeno-associated viral gene therapy on neonatal mice.

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JESSICA CARNES

Senior, Class of 2012

English (Creative Writing)

Michael G. Cornelius

Folly

I wrote *Folly* to experiment with a multi-genre piece of prose, poetry, and drama. The prose follows a troubled woman, Lana, 25 years old. Lana believes her mother bullied her into making a decision against Lana's best interests two years ago. Lana punishes herself for the act by guzzling alcohol and engaging in a sadistic relationship with a crazy ex-marine. She feels a cosmic reckoning awaits her. The prose represents the fiction/nonfiction of this work. Lana rifles with a deep self-loathing that literally begs to kill her.

The next genre I integrated into *Folly*, poetry, suits the characters of Fruitlezz and Mona. If diagnosed, Fruitlezz and Mona's illness would be classified as a Folie á deux, or "Shared Psychotic Disorder." Fruitlezz has been diagnosed with schizophrenia characterized by delusions of grandeur and tactile hallucinations. Mona, a simpleton not pre-disposed to mental illness, has followed Fruitlezz since the day the two met. From her, Mona has acquired tactile hallucinations. Fruitlezz and Mona speak in forms of poetry, though their life and conversations occur within the confines of dramatic stage rendering. Mona, due to her simplicity, speaks in Cinquain, Troilet, Mono-rhyme, and a bit of free verse. Fruitlezz, since her IQ is higher, uses free verse, because she has access to a wider range of words.

The two stories intersect in a literal moment, a connection both ethereal and down to earth as Lana follows the couple around town while Fruitlezz is very near to giving birth.

CHRISTINA J. GIACOMINI

Senior, Class of 2012

English (Creative Writing) & Equine/Equestrian Management

Michael G. Cornelius

Past of a Unicorn

A fantasy novella—designed as the first part of a larger sequence—*Past of a Unicorn* tells the story of a young girl, named Lucy, who is unhappy with her life as an orphan and wants to see the wider world outside the only home she's ever known. She decides to run away in search of adventure and to discover the truth about her missing parents. As she is wandering the forest, she meets a talking, winged lion named Magnar. Magnar tells her of a school where she can learn the skills she will need to survive on her own, and Lucy jumps at the chance to go. Everything seems as if it will work out perfectly until, on their way to the stronghold, they are attacked by vicious creatures named mactors. Lucy and Magnar eventually reach the school, where Lucy discovers that her life's adventures have only just begun.

COURTNEY WOLFE

Senior, Class of 2012

English (Creative Writing)

Michael G. Cornelius

Breaking the Mold

Breaking the Mold is a collection of four short stories that examines the role of women in society. Spaced forty years apart, beginning in 1912 and ending in 2012, each short story focuses on one woman and the decisions she is confronted with in order to gain agency and control of her life. Each story is situated within the socio-historical context of the period in which it is set, showing how women are affected by a continually evolving society. They are impacted by the suffrage movements, the sociological ramifications of the Second World War, the liberality and freedom of the seventies, and the precarious and polarizing climate of today. The central characters of each story are not heroines, and not intended to be interpreted as thus. Some of the decisions they make are difficult to reconcile, especially in their given socio-historical context. They are all fictitious, but the decisions they encounter, and the events of their time period are historically accurate. Each woman is confronted with answering, for herself, what it means to be a woman and to define herself as such. Each is seeking their own identity, and their own voice; a quest on which women still embark on today.

COLLEEN O'REILLY
Senior, Class of 2012
Equine Studies
Ann O'Shallie

The Influence of Barrel Size and Swing on Rider's Hip and Weight Placement

Riding at a competitive level requires more than technical knowledge. The rider's conformation and balance affect the horse's movement and at the same time, the horse's conformation and movement affect the rider's balance and symmetry. The results of this case study advocate the need for research to predict the ability of a horse and rider to complement each other. To focus the study, six riders of varying body types were videotaped seated on seven different horses. Frame-by-frame stills of each horse and rider in each phase of the stride were taken; common physical landmarks were diagrammed; and, measurements taken and converted to a common unit. The diagramming showed a correlation between: barrel size and swing influencing rider's hip rotation and ability to shift weight; the horse's carrying capacity and stride length influenced by rider weight and height; and, barrel size and swing affecting rider leg placement. The initial findings of this study strongly suggest correlations that can be used in horse/rider pairings, rider position faults, and the horse's balance. To provide definitive suggestions, it would be necessary to expand the study to include a larger population of horses and riders.

TINA BROWN
Senior, Class of 2012
Environmental Sustainability
Edward Wells

Residual Pharmaceuticals in Drinking Water

Residual pharmaceuticals can be found in our drinking water. Pharmaceutical residuals are excreted from the human body. These residuals remain in our treated drinking water due to the inability for them to be filtered out at the treatment plant. The problem with this is that, many pharmaceuticals disrupt normal bodily functions such as, the human endocrine system. The human endocrine system is made up of glands, which release hormones, when the body sends signals to do so. A disruption of the hormonal balance in one's body can create many imbalances in one's body. Many of these pharmaceuticals are mimickers of hormones. This means that the residual pharmaceuticals send false hormonal signals that confuse the body.

LOIS L. COLLINGWOOD
Senior, Class of 2012
Environmental Sustainability & Elementary Education
Edward Wells

Connecting Pennsylvania to the Chesapeake Bay

The Chesapeake Bay is the largest estuary in the United States. Much of the water that feeds the bay originates in the state of Pennsylvania. Yet, many Pennsylvanian students do not understand their role in the bay's health. The goal of this project is to create an introductory unit plan designed to connect Pennsylvanian students to the Chesapeake Bay using Pennsylvania state standards and a variety of teaching methodologies.

AMANDA A. KEGGEREIS

Senior, Class of 2012

Environmental Sustainability & Business Sustainability and Environmental Management

Edward Wells

Dam Removal Stream Assessment

The PA Fish and Boat Commission will be removing the last dam on the Conococheague Creek located behind the campus of Wilson College. Removing a dam can be both beneficial and harmful to the stream's established habitat. I will analyze both the pros and cons of dam removal as well as why it is important to restore a stream's natural habitat once the dam is removed. Along with the research I will be presenting data collected from two test sites located on the Conococheague: one located upstream from the dam and the other located downstream from the dam. I will assess the differences between the two monitoring sites by comparing their chemical, biological and physical aspects. I am also collecting this data so we can compare if these aspects have changed once the dam is removed, with the hopes that the downstream location has not been affected by the dam removal.

ALICIA MILLS

Senior, Class of 2012

Environmental Sustainability

Edward Wells

Menhaden: The Most Important Fish in the Sea?

Menhaden, a small bony fish, have been used for many purposes throughout the last century. They have a specific role in the food chain and if they disappear, it will be because of lack of education. They have been used for fertilizer, livestock feed, and fish oil supplements. It has and is being overharvested largely by one corporation, The Omega Protein. The menhaden population continues to decline and the loss has a large effect on other species and the health of the bay. This research presents how menhaden are critically important to the ecosystem of the Chesapeake Bay and the impacts humans are having on this species. A research study was done on the general population with regards to their knowledge on menhaden and the roles they play that impact menhaden's population. Findings from the research will be presented. Learning about how humans impact a species is critically important to the health of the bay and our environment. Informing the public about the menhaden population is an important factor to improving the health of the bay.

KATHERINE RIEP
Senior, Class of 2012
Environmental Sustainability
Edward Wells

Improving the Conococheague Creek at Wilson College: A Plan to Encourage Self-Sustaining Brook Trout Populations

Is our campus creek healthy? I will be examining why our stretch of the Conococheague is not a Class A wild trout inhabitable stream, and if its quality can be improved enough to reach this status. The most important improvement to be made would be a riparian buffer of trees and vegetation lining the creek banks. The shade from these trees keeps the water a constant cool temperature which brook trout need to survive, and the roots hold back pollutants, sediment, and excess water to protect and stabilize the stream. Wilson College should be a community example of how Pennsylvania needs to do its part to preserve the Chesapeake Bay. We are responsible for the headwaters of the Chesapeake, and we owe it to our downstream neighbors to keep our portion clean. My proposed plan will ideally result in a clean, protected creek that is still accessible to humans and that will support its own population of brook trout to remove the need for stocking with farm raised fish.

DAVIDSON MAYER
Senior, Class of 2012
Philosophy
Edward Wells

The Legitimacy of TMDL Under the CWA

The point of this presentation is to examine the legal basis on which the Total Maximum Daily Loads (TMDL) actions under the Environmental Protection Agency (EPA) are justified. This project sets up the legal background on which the EPA is being sued by the American Farm Bureau to determine whether or not the EPA is in violation with the Clean Water Act (CWA) in terms of TMDL in the Chesapeake Bay watershed.

LAUREN DIEFFENBACH

Senior, Class of 2012

Studio Art (Painting)

Philip Lindsey

Reverie

Through lingering memories and occasional daydreams I have found that my paintings have displayed many moments in life that have left an emotional footprint on canvas. The idea of using soft and bold colors to communicate an emotional narrative is important for me. Finding myself within this collection has allowed me to dig deeper into working with black and white figures and floral patterns. A connection to Georgia O'Keefe has inspired me to create elaborate blossoms that are in all of my paintings.

LAURA HARMYK

Senior, Class of 2012

Studio Art (Photography)

Robert K. Dickson

To View the World

Making photographs can separate you from the world but it can also connect you. The camera may block your face but you are able to focus on the subject and get personal with it. These photographs range from close ups of eyes to New York City street scenes and explore what we see as well as how, by what means, we see. The black-and-white nature of the prints reinforces distance while the small scale reinforces intimacy. The images encourage the viewer to step into the photographer's place and question their own ways of connecting with the world.

JESSICA CARPENTER
Senior, Class of 2012
History and Political Science (History)
Kay Ackerman

Making and Breaking Rules: Wilson College Student Government Minutes from 1924-1927

By looking at the minutes of the Wilson College Students' Self-Government Association (S.S.G.A.), one can analyze the relationship between students and the college authorities as well as themes of student space, movement and self-control. This presentation is based on editing and transcribing the S. S. G. A. minutes from December 1924 to October 1927, as well as official College publications, and the history of college women and the "new woman" of the 1920's. Focusing on the infractions of student regulations, I explore issues of college control over the activities of students as well as compare their experience with previous generations' ideals and the ideal of the "new woman." The S.S.G.A. minutes of Wilson College in the 1920's show the control that was desired and expected of young women. These minutes also reveal the social and cultural significance of the changing views and attitudes of women in the 1920's and the impact this had on the college environment.

HAYLEY A. GLASS
Senior, Class of 2012
Political Science & Equine Studies
Jill A. Hummer

Justice Brennan and Obscenity

The Supreme Court determines when a law impinges on the freedoms of the people. Freedom of speech is guaranteed by the First Amendment of the Constitution, but there are different categories of speech, and some of those categories are not always protected by the First Amendment. Obscenity is one form of speech that is conditionally protected by the First Amendment, but there is much debate among the justices as to what actually constitutes obscenity because different people have different ideas about what is obscene. Justice Brennan's legal reasoning surrounding the concept of obscenity evolved during his thirty-six years as a Supreme Court Justice. He went from believing that it should not be protected, to the opinion that it should, possibly, be protected.

Through an analysis of all of the obscenity cases that Justice Brennan heard, I was able to see the shift in Justice Brennan's opinions and approach to obscenity. From the beginning he was very adamant that it was not a protected form of speech, but when the Supreme Court could not come to a clear consensus about what constituted obscenity, he changed his mind and reasoned that it may be best to protect obscenity. Justice Brennan felt that if the Supreme Court could not decide on a definition of obscenity, then it was their responsibility to protect the rights of the people and their right to free speech, whatever the form.

BRINITA RICKS

Senior, Class of 2012

Mathematics

Karen S. Adams

A Comparative Analysis of the Efficiency of Multi-trials of the Warner and Simmons Randomized Response Techniques

This research reports upon the efficiency of multi-trial Warner and Simmons' Randomized Response Techniques (RRT). RRT is used when attempting to solicit direct responses to sensitive questions. In this research, participants were directed to respond to a sensitive question in three ways; the use a single trial of the direct method; and the use of three trials of both the Warner and Simmons' method. Results indicate that responses obtained using randomizers are better estimates of the actual population and that the multi-trial Simmons' model was proven to be superior to that of both the direct and the multi-trial Warner method.

TAMMY L. C. CLARK
Senior, Class of 2012
Psychology
Beverly Ayers-Nachamkin

Treatment Seeking Barriers for African Americans

A number of studies suggest that members of minority/ethnic groups seek mental health treatment far less often than Causation Americans. This study examined two treatment seeking barriers to counseling for African Americans: participants' racial identity and counselors' own race and level of cultural sensitivity. I hypothesized that African American participants' racial identity (as measured by the Cross Racial Identity Scale) would affect their favorability ratings of counselors as a function of counselor race and level of cultural sensitivity. I further hypothesized that African American counselors and counselors high in cultural sensitivity would receive a higher favorability rating than white counselors and counselors low in cultural sensitivity. Results were significant such that African American counselors received a higher favorability rating than white counselors, suggesting that race is a mediating characteristic. There were also significant results suggesting a relationship between participant racial identity and counselor favorability.

MARSHA DECKER

Senior, Class of 2012

Psychology

Carl F. Larson

Contextual Influence as Evidence of an Integrative Model of Speech Perception

To examine the possible interactive processes in speech perception, phonemic restoration (PR) was used to measure the relationship of context to target words heard in masked phrases. Higher incidences of PR would indicate a greater reliance on contextual cues and demonstrate top-down processes. Participants included 10 English speaking females ranging in ages from 19 to 55. Pairs of similar sounding target words were masked by a (125 ms) tone and presented in four conditions, semantically informational phrases (I), semantically misinformational phrases (M), semantically uninformative phrases (U), or informational phrases with semantically non-informational target words (N). A one-way ANOVA for repeated measures revealed that the N condition followed by M condition had the highest incidence of PR. This could indicate a reliance on phrase context when verbal cues are not available and suggest interactive perceptual processes.

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DESTINEE HAYS
Senior, Class of 2012
Psychology
Beverly Ayers-Nachamkin

The Effects of Music on a Simple Multiplication Task

In a conceptual replication of the "Mozart Effect," the effect of instrumental music on a simple multiplication task was analyzed in this study. Female undergraduate students were randomly assigned to one of three conditions: silence (no music), arousal (Jazz music), or relaxation (calming music). Participants completed as many problems correctly as possible in a ten minute time period. No significant difference was found in accuracy scores (#correct/#completed). A marginally significant difference was found in the total number of answers completed by participants, which showed that participants in the arousal condition completed more problems than those in the silence condition. However, participants in the silence condition had significantly fewer incorrect answers than participants in the arousal condition. These findings should inspire more research to be conducted on the complex effects of music on performance.

ASHLEY OVERDORFF

Senior, Class of 2012

Psychology

Beverly Ayers-Nachamkin

Effects of Ego-Depletion and Resource Beliefs on a Cognitive Task

The present study investigated whether ego-depletion and resource beliefs affected participants' cognitive ability to solve moderately difficult anagrams. Participants were 44 undergraduate women volunteers who were asked to fill out a questionnaire biased for either the limited resource theory (acts of self-control deplete us so that subsequent acts of self-control are harder) or the non-limited resource theory (acts of self-control energize us). They were then either given a depletion task in which they had to cross out letter 'e's in a lengthy document under certain complicated stipulations, or a non-depletion task in which they just had to cross out all the letter 'e's. Lastly, they were asked to complete an anagram task. Results revealed no significant differences in participants' ability to correctly solve anagrams as a function of which biased questionnaire they completed or whether they were depleted or not. Implications for ego-depletion theory, as well as the relevance of resource beliefs as a moderator for the effects of ego-depletion, are discussed.

DEB TIBBITS
Senior, Class of 2012
Psychology
Carl F. Larson

Trauma and Its Effects on Physical and Cognitive Resilience

Resilience is the ability to recover from negative events and maintain a positive outlook. It has been demonstrated that one of the ways in which people develop resilience is through early life stressors. Research has shown that people who are resilient handle traumatic situations better than people who are not resilient. As a result, they have less negative mental health issues and exhibit improved cognitive performance. The current study seeks to explore whether there is a relationship between early life stressors and physical resilience in response to emotional stimuli. Female college students and faculty will be asked to view an anxiety-provoking film while their physiological reactions are measured. A cognitive word task administered directly after the film will measure cognitive ability in relation to resilience. Participants will then complete the Trauma History Questionnaire and the Connor-Davidson Resilience Scale in order to measure early life stressors and trauma history. A multivariate test is expected to show shorter physiological recovery times and better performance on the cognitive word task for those participants reporting early life stressors in comparison to those participants who do not.

JENNA JAMISON YEAGER

Senior, Class of 2012

Psychology

Beverly Ayers-Nachamkin

The Effects of Sleep Deprivation and Distractibility on Cognitive Performance

To test the effects of sleep deprivation and distractibility on cognitive performance, ten female college students were sleep deprived for twenty-four hours. Participants were randomly divided into either a distracting or a non-distracting testing environment condition and were then tested once every eight hours on challenging word-find tasks. The data did not support the hypotheses that there would be a significant decrease in the number of words found on the word-find task or that there would be a significant increase in the number of times the participants turned their heads to look at the distracting stimulus as a function of sleep deprivation and the testing environment. There were no significant differences found on the word-find task between the distracting environment condition and the non-distracting environment condition. Regardless of the testing environment, participants performed significantly better on the word-find task at sixteen hours of sleep deprivation than they did in any other testing session. The implications of the insignificant results on the effects of sleep deprivation and distractibility on cognitive performance will be discussed.

Mass Communications: Media & Society

The posters in this session represent research undertaken by students in Media and Society (MCM 304/504) seek to illuminate an issue or event in the mass media through the application and analysis of media theory models. These models include: Antonio Gramsci's theory on Hegemony, Richard Dyer's Stereotype Models, Roland Barthes' Cultural Mythologies, Herman and Chomsky's News Filters, and Walter Benjamin's theory on Mechanical Reproduction.

April C. Davila, Mass Communications, Junior

Walter Benjamin's Theory of an Object: the Same is the Same is the Same

Crystal L. Ellgass, Mass Communications

Van Gogh *To Go*: Mass Produced Products Brandishing Great Works of Art for Profit and Portability

Dianna L. Hollada, Masters in Humanities Program

The Modern Subaltern: The Occupy Movement as Gramscian Revolution

Emma N. Lewis, Masters in Humanities Program

Media Propaganda of Today: Rupert Murdoch's News Corp

Jessie R. Stockwell, Teacher Intern Program (TIP)

Roland Barthes' 'Myths' and Marcellus Shale Ad Campaigns

Carol A. Zehosky, Mass Communications, Junior

Herman and Chomsky's Filters in the Limbaugh and Fluke News Story

SIERRA A. SCHNABLE

Senior, Class of 2012

Sociology

Julie Raulli

HONORS in the Major

Exploring the Role of Women's Colleges in Shaping Feminist Consciousness

In order to explore the role of women's colleges in developing a feminist consciousness, a qualitative study was performed to assess how same-sex education may link to future achievement, activism and volunteerism, and an awareness of gender inequality. In-depth interviews were conducted with eight Caucasian female participants that graduated from a small, liberal arts women's college forty to fifty years ago; in addition, archival data was consulted to provide a context for the interviews and to triangulate the data. Interview data showed that participants experienced a challenging yet cooperative academic atmosphere, held leadership positions on campus, and bonded with faculty role models during their undergraduate years; after graduation, most also displayed a feminist consciousness, participated actively in community volunteerism, and pursued advanced or professional degrees. The participants reported that the atmosphere at a women's college was an important influence on both their future paths and their worldviews. These findings confirm the work of Miller-Bernal (1993, 2006) on the benefits of same-sex education as well as the research of Reingold and Foust (1998) on group consciousness. This research is especially significant in a society where women's colleges are quickly disappearing, despite the documented benefits of same-sex education for women.

KACIE OBERHOLZER

Senior, Class of 2012

Veterinary Medical Technology

Freya S. Burnett

A VMT International Internship

As a requirement for all Veterinary Medical Technology students, I completed a 240 hour internship. It was my understanding that an internship could take place anywhere in the nation as long as it fulfilled certain requirements. Always one to push the limits, I researched and developed an international internship through Hartpury College located in rural Gloucestershire, United Kingdom. Situated about a 2 hour drive outside of London, Hartpury provided a wealth of veterinary experience in the realm of the British Veterinary Association. An educational research facility, I spent 5 weeks in the Equine Therapy Centre (ETC) and one week in the Dairy and Pig Units.

In the ETC, I worked with many sport horses with injuries. The main goal being therapeutics and rehabilitation, the ETC provided plush livery, high-speed treadmill exercise, Aqua-fit hydrotherapy, Zamar and Electrotherapy, osteopathic manipulation, gait analysis, and much more!

On the dairy unit, I not only milked cows, but helped with many routine procedures such as calvings, artificial insemination (AI), pregnancy checks, and hoof-trimming. The pig unit was a world all its own!

Furthermore, I had an amazing opportunity to shadow in the Three Counties Equine Emergency and Referral Hospital. Here I saw everything from digital radiography, scintigraphy, AI, ultrasound, general anesthesia and surgery, endoscopy, IV fluid administration, and plasma transfers.

The trip was an amazing experience and an opportunity of a lifetime.