

Schedule of Events

(WAR) = Warfield Auditorium (SCI) = Science Center Auditorium
 (SC2L) = Science Center Second Floor Front Lobby (H) = Honors

**9:00 to
10:00 a.m.** **SESSION ONE (WAR)**
 Welcome Address / Moderated by Professor Larry Shillock

9:00 Deon Seeman
 The Federalists and the Anti-Federalists: The Connection between a college course entitled Introduction to Political Science and a High School Class called American Government

9:15 Kiah Berman
 The Spanish Imposition of Racial Hierarchy in Mexico

9:30 Jessica Domanico
 No Improper Vehicle: Charlotte Smith and the Eighteenth Century Sonnet Revival

SESSION TWO (SCI)

Welcome Address / Moderated by Dean Mary Hendrickson

9:00 Xioameng Li
 You Don't Know Me

9:15 Donald Mohler
 Donny Scotland's Muleland

9:30 Jennifer Fisher
 Becoming

Schedule of Events (continued)

**10:15 to
11:15 a.m.** **SESSION ONE (WAR)**
Moderated by Falon Clark

10:15 **Ute Cline**
Public Perception of Immigration Groups in the United States

10:30 **Xioameng Li (H)**
Google versus China? China's Hegemonic Regulation of .cn

SESSION TWO (SCI)
Moderated by Jessica Domanico

10:15 **Susan Davies**
Chemicals Added To And Obtained From Hydraulic Fracturing Pose A Significant Human Health Threat

10:30 **Donny Mohler**
Drilling For Natural Gas Vs. Revenue From Recreation: A Comparative Analysis Of Revenue That Can Be Generated From Pennsylvania State Game, Forest, And Park Lands

10:45 **Judy Scriptunas**
Oil And Gas Companies Should Be Held Liable For Stray Gas Migration Issues Resulting From The Marcellus Shale Play



Schedule of Events (continued)

11:15 a.m. to **SESSION ONE (WAR)**
12:15 p.m. Moderated by Janessa Demeule

11:15 **Nicole Twigg**
Young Adult Fiction Novella

11:30 **Rochelle Plummer**
Daily Observations

11:45 **Nina Leon**
Cellophane

SESSION TWO (SCI)

Moderated by Dana Hill

11:15 **Alexandra Thorpe**
Tomboyism and Stereotype Threat

11:30 **Karen Herman**
Exploring the Factors that Influence Peoples' Experience of Drug and/or Alcohol Treatment

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

1:00 to
2:00 p.m.

POSTER SESSION (SC2L)

- 1 **Paula Marshall**
People Choose to Learn or to be Entertained. Tracking Visitors in “Swampland” at the Oregon Coast Aquarium
- 2 **Emilee Beidel**
Analyzing the Optimal Defense Theory: Intra-Specimen Variation in the Distribution of Secondary Metabolites in Branching Sponge Species and the Relative Ecological Impacts
- 3 **Ashley Wetzel**
The Use of Scat Analysis and Fecal DNA Extraction to Analyze Diet and Habitat Use of Andean bears, *Tremarctos ornatus*, in the Baeza Region of Northern Ecuador
- 4 **Ciera Rhodes**
Pesticide Effects on Parasite QPX (Quahog Parasite Unknown) and its Host *Mercenaria mercenaria*
- 5 **Desiree Robinson**
The Effects of the Rhodococcus F.92 and Levels of Aeration on Degradation of Diesel Trapped in Fine Sediment
- 6 **Tonya Bender**
The Effect of Nitrogen Deficiency on the Production of Bio-fuel from *Chlorella* Using Microwave-assisted Pyrolysis
- 7 **Alyssa Bernard**
Antimicrobial Effects of Essential Oils for the Control of Oral Bacteria in the Prevention of Periodontal Disease in Canines

POSTER SESSION (SC2L)

- 8 **Sarah Morrison**
Investigation of Ascorbic Acid as an Effective Treatment of Malignant Neoplasm in Canines
- 9 **Chelsea Varner**
Analysis of the Relationship between Fetal Microchimerism Cells in the Spleen and the Presence and Severity of Idiopathic Thrombocytopenic Purpura, an Autoimmune Disease of the Platelet
- 10 **Brianna Doscher**
The Effect of High Folic Acid Serum Levels through Diet Fortification and Supplementation on the Development of Rats
- 11 **Ovsanna Movsesyan**
Examination of Short Term Heart Rate Effects in Mice Treated with Insulin and Glucose: Correlation Between Type 1 Diabetes and Irregular Heart Rates (Arrhythmia)
- 12 **Amanda Mace**
The Effect of Niacin in Combination with a Fish Oil/Oat Bran Diet on High-density Lipoproteins and Low-density Lipoproteins in Hypercholesterolemic Rats
- 13 **Laura Beck**
A Measure of the Effects of Electrolyte Containing Sports Drinks on Physiological Parameters Before, During and After Exercise
- 14 **Lori Fedorczyk**
Social Reorganization in Female Mice and Its Impact on Hippocampal Function

Schedule of Events (continued)

2:00 to **SESSION ONE (WAR)****3:15 p.m.** Moderated by Kacie Oberholzer**2:00** **Christina Shick**

From the Kitchen Table to the Bar Counter: Women's views on Alcohol and Prohibition

2:15 **Alaina Hofer**

Beware of the Company of Evil Women: the Complexity of Female Criminality in the Old Bailey Court Records, England 1690-1700

2:30 **Melissa Murphy**

Sexual Agency in the Lais of Marie de France

2:00 to **SESSION TWO (SCI)****3:30 p.m.** Moderated by Emilee Beidel**2:00** **Falon Clark**A Comparative Analysis of the Effects of Different Wavelengths of Light on the Growth Rate, Pigmentation, and Behavior of *Carassius auratus* and *Danio rerio***2:15** **Megan Dennis**Comparing Vitellogenin Induction by 17 β -Estradiol in Male *Danio rerio* Through a Tritrophic Bioaccumulation Model and a Bioconcentration Model**2:30** **Jennifer M. Tucker (H)**

Serotonin Transporter Gene Polymorphism (5-HTTLPR) and Anxiety

2:50 **Monique Pare (H)**

The Efficacy of Dietary Supplementation of Polyunsaturated Fatty Acids on Psoriasis in the Psoriasisform Murine Model KC-Tie2

3:10 **Jing Luan (H)**Detection of Changes in Mitochondrial Integrity and Levels of GSK-3 β in Hippocampal Mitochondria of the Triple Transgenic Mouse Model of Alzheimer's Disease

Schedule of Events (continued)

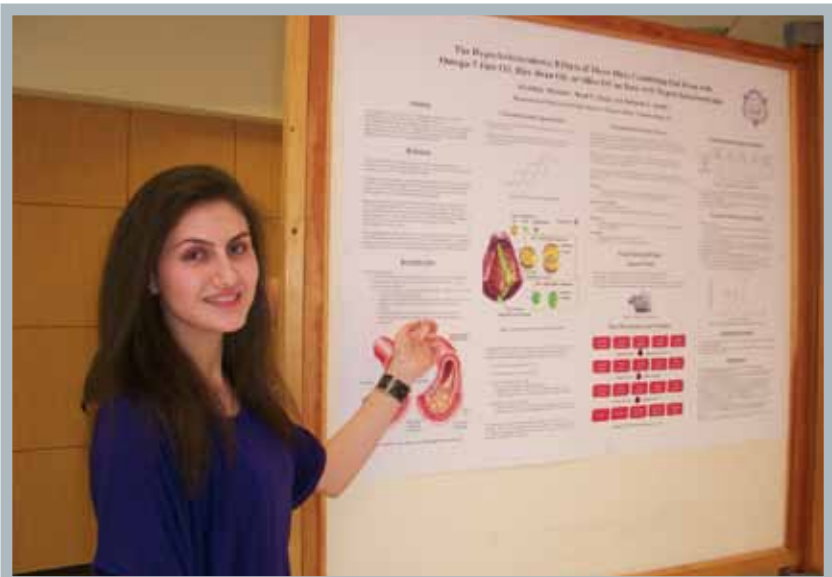
3:45 to
5:00 p.m.

DISERT SCHOLAR PRESENTATION

Moderated by Professor Brad E. Engle and Deborah S. Austin

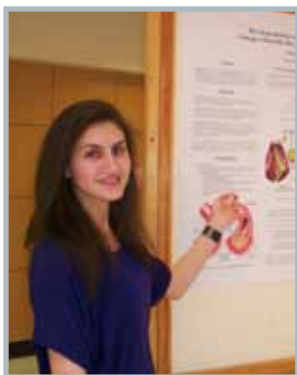
Mariam Khalifeh

The Effects of Water-Soluble Fiber Combined with Poly- and Monounsaturated Fatty acids on Plasma Lipoprotein Levels in Hypercholesterolemic Rats



2nd Annual
Student Research
April 29, 2011 **Day**





MARIAM KHALIFEH

Senior, Class of 2011

Biology and Chemistry

Brad E. Engle and Deborah S. Austin

DISERT SCHOLAR

The Effects of Water-Soluble Fiber Combined with Poly- and Monounsaturated Fatty acids on Plasma Lipoprotein Levels in Hypercholesterolemic Rats

Hypercholesterolemia is a metabolic disorder characterized by elevated concentrations of circulating plasma low density lipoproteins (LDL). Hypercholesterolemia is directly associated with an increased risk for coronary heart disease. Pharmacological treatments for hypercholesterolemia result in adverse side effects and have been associated with potential carcinogenicity. Recent research has suggested that natural approaches and nonpharmacologic interventions, consisting largely of dietary modifications, are advocated as a first-line treatment for hypercholesterolemia. Olive oil, fish oil, and rice bran oil are rich in monounsaturated (MUFA) and polyunsaturated fatty acids (PUFA), which affect plasma cholesterol metabolism via different mechanisms. Furthermore, oat bran, an important source of water-soluble fiber, is recognized as a potential hypocholesterolemic dietary component. This study investigated the efficacy of three diets, combining each of the unsaturated oils with oat bran, in lowering plasma cholesterol levels in hypercholesterolemic rats. In order to determine the effectiveness of each diet, plasma samples were collected from the rats, and quantitative analysis of plasma lipoproteins was performed using high performance gel filtration chromatography (HPGC). The results of this study will provide insights about how PUFAs, MUFAs, and water-soluble fiber may be used in combination diets to reduce plasma cholesterol concentrations in hypercholesterolemic patients.



LAURA BECK

Junior

Biology and Exercise and Sports Science

Brad E. Engle and M. Dana Harriger

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

The purpose of electrolyte containing sports drinks is to replace electrolytes and fluids which are lost during exercise through perspiration. These drinks are consumed to decrease dehydration and maximize aerobic performance during a period of exercise. These effects are caused by the increased hydration levels due to electrolyte content. Increased hydration levels will then positively affect other physiological parameters. This study will measure the effects of sports drinks on physiological parameters while a person is undergoing intense exercise. Nine Wilson College athletes will be enrolled in this study and will be required to consume a specified amount of drink during exercise sessions. Hydration, blood pressure, respiration rate, metabolism and electrolyte levels are the parameters which will be measured during each session. Three different drinks will be used. A control will consist of water and the other two will be sports drinks, one containing high electrolyte amounts and the other containing lower electrolyte amounts. It is expected that the drink containing the highest amount of electrolytes will help maintain hydration the best and have the greatest impact on the physiological parameters. Results of this study will help us understand the amount of impact the electrolytes have on physiological parameters during exercise.

EMILEE BEIDEL

Junior

Biology*Laura F. Altfeld and Deborah S. Austin***Analyzing the Optimal Defense Theory: Intra-Specimen Variation in the Distribution of Secondary Metabolites in Branching Sponge Species and the Relative Ecological Impacts**

In natural marine environments there are numerous ecological threats, such as biofouling by colonizing microorganisms and larvae of macroorganisms, competition over limited suitable space, and the constant risk of predation, which organisms must overcome to achieve fitness. Many marine invertebrates lack sufficient physical protection to deter these ecological threats; therefore, these organisms may employ alternative means of protection such as chemical defenses. Marine sponges represent an example of an organism implementing chemical defenses, in the form of secondary metabolites, to protect against biofouling, competition, and predation. Variation in the production of sponge secondary metabolites can be attributed to physical, ecological, and species related factors. While extensive research has been conducted to analyze secondary metabolites in plants, limited research has been conducted to examine the intra-specimen variation of secondary metabolite production and distribution in sponges. The optimal defense theory states that organisms allocate their defenses to best promote individual fitness. Based on this theory one could hypothesize that secondary metabolites will be more concentrated in areas of the sponge most exposed to biofouling and predation. The purpose of this research will be to evaluate this hypothesis by examining the distribution and relative antibacterial and anti-predatory activity of secondary metabolites within a species of branching sponge.

TONYA BENDER

Junior

Chemistry*Deborah S. Austin and Catherine Santai***The Effect of Nitrogen Deficiency on the Production of Biofuel from *Chlorella* Using Microwave-assisted Pyrolysis**

Thermochemical conversion of *Chlorella* sp. microalgae to bio-oil will be done by microwave-assisted pyrolysis. Pyrolysis is a type of thermolysis requiring temperatures between 500-700°C in the absence of oxygen. A microwave oven will be used to obtain the temperatures needed for the reaction to occur. The experiment and analysis will be carried out on two groups of *Chlorella* sp. *Chlorella* is a type of green microalgae that is capable of storing 14-50% lipids of their total mass depending on the species and conditions. In nutrient poor conditions *Chlorella* will increase their lipid storage. Nutrient poor conditions will be introduced onto one group of *Chlorella* by decreasing nitrogen availability during cultivation; a second group will be cultivated under adequate nitrogen levels. The bio-oil yields for both groups will be determined and compared. The yield from the nitrogen deficient group is expected to be greater than the control group due to the increase in lipid storage. The chemical composition of the bio-oil will also be determined using infrared spectroscopy and gas chromatography-mass spectrometry. In addition the bio-oils will be analyzed for bio-oil quality determined by density, viscosity, Higher Heating Value (HHV) and compared with biodiesel produced by the Department of Environmental Studies at Wilson College and with commercial grade diesel.



ALYSSA BERNARD

Junior

Biology

Brad E. Engle and M. Dana Harriger

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

Up to 80% of adult dogs have some form of periodontal disease caused by the buildup of plaque and tartar on and around the teeth. Gingivitis, the first stage of oral disease, is reversible and occurs when aerobic bacteria found in the mouth inflame the gum and begin to deteriorate the gum line. If left untreated, periodontal disease can lead to bad breath, tooth loss, and can have long term effects on organs throughout the body. Current treatments for prevention and control of periodontal disease range from owner performed canine tooth brushing and oral sprays to professional tooth cleaning and extraction, which require anesthesia. There are a variety of plant essential oils, such as myrrh, anise, clove, and spearmint that have known antimicrobial effects. This study will investigate the antimicrobial effect of plant oils, singly or in combination, on the growth of oral aerobic bacteria comprising the normal canine flora. This will be studied using standard microbiological techniques involving disk diffusion assays on agar plated and broth cultures. By decreasing the number of aerobic bacteria in the oral flora, it is expected that a dog's breath will become less offensive and more importantly prevent the beginning stages of canine periodontal disease. The results of this study could potentially give canine owners an alternative, more natural, easily implanted option for preventing periodontal disease in dogs.

FALON CLARK

Senior

Biology*Laura F. Altfeld and Brad E. Engle***A Comparative Analysis of the Effects of Different Wavelengths of Light on the Growth Rate, Pigmentation, and Behavior of *Carassius auratus* and *Danio rerio***

The purpose of this experiment was to determine if either *Carassius auratus* or *Danio rerio* exhibits phenotypic plasticity in response to the light conditions under which they are living. To test this, the two fish species were maintained under one of four different light conditions, red, blue, green, or yellow, and growth rate, pigmentation, and behaviors were monitored. Initial weights and length measurements were determined for baseline data prior to light exposure. Digital images were also taken pre-treatment to determine the intensity of pigmentation prior to the experiment. The fish were then exposed to their lighting treatments for seven weeks on a 12:12 light cycle. Over the course of the seven weeks, daily behavioral data was collected using an ethogram. At the end of the seven week treatment period, digital images were again taken of the fish, along with final weights and lengths. Statistical analysis is being performed to determine if one wavelength of light has more significance over another in affecting any aspect of the fish's behavior, growth rate, or pigmentation.

MEGAN DENNIS

Senior

Biology and Chemistry*Laura F. Altfeld and Deborah S. Austin***Comparing Vitellogenin Induction by 17β -Estradiol in Male *Danio rerio* Through a Tritrophic Bioaccumulation Model and a Bioconcentration Model**

The steroid hormone 17β -estradiol (E2) is excreted into the water by humans and is not filtered by sewage treatment plants. Its presence in the aquatic ecosystem is causing a disruption of the functioning ability of many aquatic organisms. Being lipophilic allows 17β -estradiol to be stored in primary producers, giving E2 the ability to possibly bioaccumulate up the food chain. The chemical E2 can also bioconcentrate in aquatic species, specifically fish, which implies it can be accumulated through non-dietary routes. A tritrophic model, using diatoms (*Navicula radiosa*), daphnia (*Daphnia pulex*), and zebra fish (*Danio rerio*) will serve to evaluate the bioaccumulation and potential trophic transfer by exposing diatoms to E2. A second bioconcentration model will determine the ability of E2 to concentrate in *D. rerio* via direct exposure of water treated with E2. In both of these experiments, quantification of vitellogenin (Vtg) production by *D. rerio* will be compared between treatments using an ELISA. It is expected that elevated Vtg levels will be found in the *D. rerio* treated with E2, in both models. The results obtained will be analyzed by a multi-variable ANOVA and Bonferroni post hoc.

BRIANNA DOSCHER

Junior

Biology*M. Dana Harriger and Catharine Santai***The Effect of High Folic Acid Serum Levels through Diet Fortification and Supplementation on the Development of Rats**

The supplementation with folic acid (vitamin B9) before and after conception is known to decrease the chance of neurological birth defects by fifty percent. However, the effect of continually maintained high serum levels of folic acid from fortified diets or supplementation on development is not widely known. Surveys have indicated that 5% of Americans had a folic acid intake that was above the tolerable upper level. Many individuals were consuming foods fortified with folic acid as well as taking supplementation. This leads to the question if a woman has an elevated folic acid serum level above tolerable upper levels, could the elevated folic acid lead to malformations of the developing fetus? An initial study in mouse embryos indicated that somite, neural tube and cardiac development were affected when the mothers were maintained with high folic acid serum levels. This proposed study aims to investigate if high intake of folic acid in a rat that becomes pregnant will introduce other developmental anomalies in organs, rather than prevent them. This research will be performed by varying the folic acid content in the diets as well as administering supplemented folic acid via oral gavage between the research groups. The females will be bred and maintained on their prescribed diet regimen throughout the pregnancy. The folic acid serum levels will be monitored in pups from each diet group for four weeks postpartum followed by an analysis of cardiac structure.

LORI FEDORCZYK

Postgraduate - Second Major

Biology*Brad E. Engle and M. Dana Harriger***Social Reorganization in Female Mice and Its Impact on Hippocampal Function**

Previous research found that inducing social reorganization in male mice produced toxic effects when they were exposed to an influenza virus (Padgett & Sheridan, 1999 as cited in Cacioppo, et. al., 2002). Additional studies have been performed to uncover the mechanism behind this surprising finding, however, each of these focused on immunological effects and most left out the potential neurological impact from the repeated activation of the hypothalamic-pituitary-adrenal (HPA) axis (Stark, 2001; Stark, 2002; Quan, 2001; Avitsur, 2003; Avitsur, 2007). Corticosteroids released as part of the stress response have been shown to have a significant impact on the hippocampus, a region of the brain noted for learning and memory (Conrad, 2008). The current study focuses on the neurological impact of social disruption in the murine model. Groups of female mice will be reorganized every other day over three different time frames (1 week, 2 weeks, and 4 weeks). Physiological parameters (e.g., heart rate) and hippocampal function will be measured and assessed for significance in comparison to mice left in their home cage.

JING LUAN

Senior

Biology*Brad E. Engle and M. Dana Harriger***Detection of Changes in Mitochondrial Integrity and Levels of GSK-3 β in Hippocampal Mitochondria of the Triple Transgenic Mouse Model of Alzheimer's Disease**

Alzheimer's disease (AD) is a neurodegenerative disorder characterized by the cellular accumulation of amyloid beta (A β) and hyperphosphorylation of tau protein. However, recent evidence has shown that mitochondrial dysfunction may occur prior to AD pathology in triple-transgenic AD (3xTg-AD) model mice. Glycogen synthase kinase-3 β (GSK-3 β), an enzyme abundant in neuronal cells of brain regions including the hippocampus and cortex, exhibits elevated activities in AD and has been detected in the mitochondria. Overexpressing mitochondrial GSK-3 β *in vitro* has been further demonstrated to compromise mitochondrial functions, with its biological relevance remaining to be examined. This preliminary project aims to confirm the early occurrence of mitochondrial impairment in AD and to further determine if the event is accompanied by the overactivation of mitochondrial GSK-3 β *in vivo*. Changes in mitochondrial levels of phospho-Tyr-216-GSK-3 β and phospho-Ser9-GSK-3 β during AD progression are being measured along with the functional integrity of mitochondria, as indicated by the percentage of polarized mitochondria, the fluctuation frequency of mitochondrial membrane potential, and the mean mitochondrial membrane potential. Three groups of 3xTg-AD mice; 3, 6, and 8 months of age, are being analyzed with corresponding control groups. The results may enhance our understanding of mitochondrial dysfunction and protein dysregulation in early AD stages.



AMANDA MACE

Junior

Chemistry

Deborah S. Austin and Catherine Santai

The Effect of Niacin in Combination with a Fish Oil/Oat Bran Diet on High-density Lipoproteins and Low-density Lipoproteins in Hypercholesterolemic Rats

Niacin is a relatively new treatment for individuals with high cholesterol levels, which may lead to heart disease. Niacin has been shown to raise levels of high-density lipoproteins (HDL), but does not affect low-density lipoprotein (LDL) levels. Diet is also an important factor in lowering cholesterol levels. A combination diet of fish oil and oat bran has been shown to effectively reduce LDL levels; in an experiment done by Mariam Khalifeh fish oil/oat bran in the diet increased HDL levels in hypercholesterolemic rats and lowered VLDL and LDL levels. The combination of the diet and niacin would raise HDL and lower LDL to produce a healthier overall cholesterol level in a rat model. Three groups of rats will be fed different diets of fish oil/oat bran, niacin, and fish oil/oat bran and niacin. Blood samples will be collected using the retro-orbital sinus technique; these draws will be taken before the study begins, after the rats have been fed a high fat diet for two weeks, and eleven weeks after the rats have been on the experimental diet and medication. Plasma will be analyzed using high-performance gel filtration chromatography. The concentrations of HDL, LDL, and VLDL will be compared across each study group and prior to and after the experimental diets have been provided to the rats. One-way ANOVA will be used to make comparisons across the groups, and will statistically determine whether or not the combination of diet and medication had a significant effect on plasma cholesterol concentrations. This study will be providing insights about how a combination of diet and medication may be used to alter plasma cholesterol levels in hypercholesterolemic patients.

SARAH MORRISON

Junior

Biology*M. Dana Harriger and Catherine Santai*

Investigation of Ascorbic Acid as an Effective Treatment of Malignant Neoplasm in Canines

Malignant Neoplasm (cancer) is a disease that has no effective cure and the prognosis is especially poor in canines. This disease is currently treated using conventional chemotactic agents that destroy the natural defense system already present in the body while attacking the tumor cells. Ascorbic acid may prove to be an effective alternative for treatment due to its chemical actions on tumor cells and has limited known side effects. Its use in cancer treatment is controversial but has recently been demonstrated to be effective at targeting and causing necrosis of the tumor cells through intracellular hydrogen peroxide generation as a result of ferritin interaction (N. H. Riordan, 1995). While ascorbic acid is beneficial to overall immune system function when taken orally, the tumor necrotic effect is only achieved through high dose intravenous injections. The intention of this case study is to test the efficacy of ascorbic acid in tumor necrosis in canines. The anticipated results are that high intravenous doses of ascorbic acid will result in increased tumor necrosis and improved quality of life in canines both receiving and not receiving conventional therapies.



OVSANNA MOVSESYAN

Junior

Biology

Catherine Santai and Brad E. Engle

Examination of Short Term Heart Rate Effects in Mice Treated with Insulin and Glucose: Correlation Between Type 1 Diabetes and Irregular Heart Rates (Arrhythmia)

Worldwide, a significant proportion of the population is affected by diabetes (25.8 million children and adults, 8.3% of the population) according to the American Diabetes Association. Persons with diabetes have high concentrations of the sugar glucose in the blood which the body is unable to absorb because either the pancreas does not make enough insulin, the body does not respond properly to the insulin signal to absorb the glucose, or both (Alterman, 2006). Diabetes is interconnected with coronary artery disease as well as cardiovascular diseases/disorders. The hypothesized connection between diabetes and heart arrhythmia is a current area of research (Howarth et al. 2011 select example). This research project will focus on determining the short term effects of low blood sugar (glucose) concentration as a mimic of diabetes on heart rate of mice over two hours. Problems with the conduction system in the heart causes the heart to beat too fast (tachycardia), too slow (bradycardia) or to have irregular beats. This research will investigate the hypothesized connection between diabetes and heart arrhythmia, specifically tachycardia and bradycardia using a mouse model system.

Alterman, Seymour L., and Donald A. Kullman. "Type 1 and Type 2 Diabetes." *Diabetes: Prevention, Control, and Cure*. Random House Digital, 2006. 7-8.

American Diabetes Association <http://www.diabetes.org/diabetes-basics/diabetes-statistics/>
Cavendish, Marshall. "Heart Disorders." *Diseases and Disorders*. Vol. 2. New York: Marshall Cavendish, 2007. 412-14.

Howarth FC, Jacobson M, Shafiullah M, Ljubisavljevic M, Adeghate E." Heart rate, body temperature and physical activity are variously affected during insulin treatment in alloxan-induced type 1 diabetic rat. *Physiol Res*. 2011 60(1):65-73.



MONIQUE PARE

Senior

Biology

M. Dana Harriger and Catherine Santai

Collaboration with Nicole Ward, Ph.D. of
Case Western Reserve University

The Efficacy of Dietary Supplementation of Polyunsaturated Fatty Acids on Psoriasis in the Psoriasis-form Murine Model KC-Tie2

Psoriasis is an autoimmune, inflammatory skin disorder affecting ~3% of the population worldwide and has broad physical and mental effects on many dimensions of health-related quality of life. This skin disorder is characterized by extensive angiogenesis, increased inflammatory infiltrate in the skin and localized raised hypertrophic epidermal plaque formation. Conventional treatments for controlling psoriasis have significant and adverse side effects ranging from itching and erythema to increasing the risk of developing various types of cancer. Concerns over these have piqued interest in the investigation of alternative holistic therapies. Studies suggest that ω -3 and ω -6 polyunsaturated fatty acids (PUFAs) suppress or stimulate inflammation respectively. Using a well characterized murine model of psoriasisform skin inflammation (KC-Tie2 animals), we compared the efficacy of dietary supplementation with ω -3 and ω -6 PUFAs as an alternative treatment for psoriasis. Following 8 weeks of dietary modification, disease resolution was examined by measuring the levels of epidermal thickness (acanthosis), angiogenesis and the levels of cutaneous immune cell infiltrate. The results of this study may provide support for alternative approaches in lieu of or in combination with conventional treatments of psoriasis.



CIERA RHODES

Junior

Biology

Laura F. Altfeld and Brad E. Engle

Pesticide effects on parasite QPX (Quahog Parasite Unknown) and its host *Mercenaria mercenaria*

Mollusks filter water as they feed, and this is a valuable ecosystem service for coastal waters that are overloaded with nitrogen and various other nutrients from land based activities such as agriculture. Hard clams, for example, can filter up to two gallons of water per hour. In addition, hard clams support an important commercial fishery along the Atlantic coast of the United States. Parasites and environmental factors are currently a concern for aquaculture sites. The QPX (Quahog Parasite Unknown) is a protistan parasite of *M. mercenaria* and has caused significant mortality of cultured clams in northeastern United States. The QPX organism is present in sediment and water and does not cause disease until there is an extreme environmental stress that reduces the ability of clams to fight infection. Some environmental factors such as temperature and salinity have been shown to affect the immune system resulting in more susceptibility to the QPX parasite. The purpose of this study is to examine a pesticide and its effect on the parasite and the host, *M. mercenaria* immune defenses. This will be the first study that will provide evidence for the impact of pollution on constitutive defenses of hard clam and their response to QPX infection.

DESIREE ROBINSON

Junior

Biology*Laura F. Altfeld and Deborah S. Austin***The effects of the Rhodococcus F.92 and levels of aeration on degradation of diesel trapped in fine sediment**

Oil pollution has become a problem since the beginning of fossil fuel use. Oil pollution can occur at any point of the oil production process from drilling, refining, storing or transporting. Oil spills can be detrimental to the marine environment. Oil that is ingested by animals can cause damage to immune system, interruption to breeding, deformities to offspring, contamination of food chain, and fatality. Even after oil appears to have dissipated, oil can still be present beneath beaches and sea beds. Oil spill cleanup is difficult and lengthy depending on the type of oil. Some methods of clean up may further damage the environment. One method that has had promising results is bioremediation. Bioremediation uses biological agents such as bacteria, fungi or plants to remove or neutralize contaminants. Rhodococcus is a species of bacteria capable of degrading hydrocarbons such as oil. Bio-stimulation involves modifying the environment to increase bioremediation. One example of bio-stimulation is performed by increasing oxygen, which is a rate limiting factor in marine waters and sediments and required for bacteria to degradation of hydrocarbons. Studies have shown that oil buried in sediment degrades much slower due to lack of oxygen needed for bacteria to metabolize. This research will examine a combination of Rhodococcus and aeration to degrade diesel as a hydrocarbon source trapped in fine sediment.

CHELSEA VARNER

Junior

Biology*Brad E. Engle and Catherine Santai***Analysis of the Relationship between Fetal Microchimerism Cells in the Spleen and the Presence and Severity of Idiopathic Thrombocytopenic Purpura, an Autoimmune Disease of the Platelet**

The presence of fetal microchimerism cells correlates with the development of certain autoimmune diseases. There is also evidence of a link between thrombocytopenia and autoimmune diseases. This research project will investigate whether there is a relationship between fetal microchimerism cells in the spleen and the severity of Idiopathic Thrombocytopenic Purpura (ITP) in which the immune system destroys blood platelets within the body. Conditions resembling spontaneous autoimmune diseases occur after stem cell transplantation. From this arose the idea that non-host cells may participate in the pathogenesis of autoimmune diseases. A similar phenomenon occurs between a mother and fetus. Cells from the fetus remain in the mother's circulation and tissues after birth; therefore, the cells are considered foreign to the mother. There is evidence that these foreign cells, also known as fetal microchimerism cells, remain in the mother for many years (Tanaka et al, 1999). This research will provide either a positive or negative correlation between fetal microchimerism cells in the spleen and the presence and severity of Idiopathic Thrombocytopenic Purpura. Female mice genetically modified for ITP will be mated with male mice containing enhanced green fluorescent protein (EGFP) in all cells. The spleens of the female mice will be evaluated by cell count of the EGFP and platelet counts by flow cytometry. This will be done at two different time periods, one representing young age and the other representing old age to analyze whether a relationship exists between the amount of FMC cells and age. ITP will be evaluated on a number scale of severity.



ASHLEY WETZEL

Junior

Biology

Laura F. Altfeld and Deborah S. Austin

The Use of Scat Analysis and Fecal DNA Extraction to Analyze Diet and Habitat Use of Andean bears, *Tremarctos ornatus*, in the Baeza Region of Northern Ecuador

Due to the elusive nature of the Andean bear, little is known about the habitat use, activity patterns, diet, and home range of this species. In Ecuador, the Andean bear is endangered and to prevent further declines in Andean bear populations ecological research is necessary. Andean bears depend heavily upon their natural environment to meet nutritional demands. While omnivorous like all bears, the Andean bear is the most herbivorous of all bear species with a diet consisting primarily of plant vascular tissues. In Ecuador, Andean bear diet is being compromised due to habitat loss caused by increased agricultural activities. The present study aims to determine whether Andean bears are becoming dependent on agricultural fields in order to meet nutritional demands. To identify major components of Andean bear diet, scat will be collected in the Baeza Region of Northern Ecuador during a month-long collection period in June, 2011. The collected scat will be analyzed for food materials which indicate dietary composition. Food materials will be identified and compared against an expected composition based on what is currently known about Andean bear diet. Diet will be analyzed using the chi-square test of independence. In addition, fecal DNA will be extracted and used in tandem with the scat analysis results to map the habitat use of target Andean bears in Northern Ecuador.



PAULA MARSHALL

Senior

TIP / Teacher Certification Program
Elementary Education

Celeste F. Barthel

People Choose to Learn or to be Entertained. Tracking Visitors in “Swampland” at the Oregon Coast Aquarium

A research internship awarded through Wilson College, Oregon State University, and an NSF- funded COSIA (Communicating Ocean Sciences to Informal Audiences) grant afforded an opportunity to study ocean sciences on the West Coast. The internship had several aspects to it, including weekly seminars given by ocean sciences researchers. Field trips for interns to learn about the coastal habitat were an integral part of the experience. The independent research aspect of the internship was a visitor tracking study at the Oregon Coast Aquarium. This free-choice learning survey was undertaken because the Aquarium had a new exhibit in place, and needed quantitative research on what parts of the exhibit were engaging the public. Research was conducted at varying times, especially weekends, to maximize the range of visitors surveyed. This student never expected to pet an octopus, get a “hug” from a sea urchin, or champion a 17-foot anaconda, as well as try snorkeling and kayaking, or holding a live Dungeness crab, all in one free-choice learning research experience!



JESSICA DOMANICO

Senior

English with a concentration in Literary Studies and Equine Facilitated Therapeutics

Larry Shillock

No Improper Vehicle: Charlotte Smith and the Eighteenth Century Sonnet Revival

Recent scholars assert that Charlotte Smith and her *Elegiac Sonnets* (1784) contributed significantly to the rise of British Romantic poetry. Her collection—published in nine additions and widely admired during Smith’s time—resurrected the sonnet, a form disused throughout most of the eighteenth century. The sonnet became a medium that anticipated Romantic themes, including a focus on the poet’s subjectivity and its relation to melancholy and memory. Poets often imitated Smith’s contributions to the form. For their parts, Samuel Taylor Coleridge and William Wordsworth also used her work as a model for their own poetry and criticism. However, scholars do not address the specific level of Smith’s influence. Through research and close analysis, “No Improper Vehicle” examines the poetry and criticism produced during the sonnet revival of the 1780s and 1790s. The first chapter addresses the personal experiences that led Smith to modify the sonnet tradition and then defines those modifications. The second chapter is an in-depth study of Smith’s influence on two first-generation Romantic poets, Coleridge and William Lisle Bowles, whose early preoccupation with the sonnet helped establish their literary authority. The final chapter focuses on Wordsworth’s sonnets and their thematic resemblance to those by Smith, as well as on how she influenced the model of poetic composition made famous in his preface to *Lyrical Ballads* (1802). The project as a whole, therefore, emphasizes Smith’s status as a pioneering Romantic poet.



XIAOMENG LI

Senior

Mass Communications and Fine Arts

Aimee-Marie Dorsten

David versus Goliath or Google versus China? China's Hegemonic Regulation of .cn

In January 2010, Google, Inc. announced that it had discovered sophisticated cyber attacks from China that stole its intellectual property and hacked into Chinese human rights activists' Gmail accounts. Google condemned China's violation of human rights and freedom of speech and decided to stop helping Chinese government censor search results. Eventually, it moved its Chinese server, Google.cn, to Hong Kong, one of China's special administrative regions, where the government's censorship does not apply. However, what was surprising in this issue was that when Google disclosed sensitive information such as the Tiananmen Square Protest in 1989 to the Chinese public, the society did not generate anxiety or outcry against the government. The calm response from the Chinese public testified Italian philosopher Antonio Gramsci's hegemony theory which points out the dominant group maintains its power by gaining consent from the society.

The Google-China incident was essentially a David-and-Goliath battle between two competing ideologies of China and the United States. This thesis thus attempts to analyze the Chinese government's media regulation through a close look at the Google-China incident. By examining China's official news coverage throughout the incident, the thesis extracts Chinese government's rhetorical strategies in dealing with external challenges targeting its ruling ideas. The thesis also applies Gramscian theories and Benedict Anderson's "imagined community" to unveil the myth of China's seemingly unpredictable Internet regulation. After all, the thesis argues that the Chinese Internet regulation demonstrates the government's effort to gain consent from the public and maintain its hegemony over the society.



ROCHELLE PLUMMER

Senior

English with a concentration in Creative

Writing

Minor in Philosophy

Michael Cornelius

Daily Observations

The book is a collection of short stories that are titled Monday through Friday, along with two short intercessionary works. Within the stories, there is a theme of “motherly love,” or lack of it, that unites all the characters in the small town of Evresbo. In each plot, the protagonists try to do what they believe is right. However, some of the actions are plain eerie, while other performances secure a safe spot in heaven.

Additionally, perceptions and shifting viewpoints allow the protagonists and the reader to discover what is real. The only problem is that there is no universal truth. In fact, at the end of each day (story), the characters still hold dear to their own beliefs. Each person rationalizes and justifies his or her actions. Thus, the question is raised throughout the book - does truth exist, even if it varied for each person?



NICOLE TWIGG

Senior

English with a concentration in Creative Writing

Minors in Psychology and Latin

Michael Cornelius

Young Adult Fiction Novella

For my Independent Project in Creative Writing I started a novella in young adult fiction that is a mixture of horror, romance, and science fiction. The novella focuses on the main character, Eden, who is also a werewolf, and her transition to life in a new town. At first, she tries to avoid making friends because she is afraid people will find out about her secret that she is forced to change into a wolf every full moon. A popular group of teenagers takes an interest in her though and becomes friends with her and she eventually discovers that they are a lot more like her than she thought and that the town is secretly run by werewolves. At the same time, the town is suffering from strange attacks on the town's members' livestock and Eden is one of the suspects. It is a story about a girl who is very insecure about herself and what she is and how she overcomes those insecurities and accepts herself, both sides of it, and realizes that she is special just the way she is.

SUSAN DAVIES

Senior

Environmental Science*Edward Wells*

Chemicals Added To And Obtained From Hydraulic Fracturing Pose A Significant Human Health Threat

Hydraulic fracturing for natural gas relies on chemicals for thickeners, lubricants and corrosion prevention. There are well over 400 chemicals that may be combined in various combinations and concentrations. While the chemicals are known, the recipes for frac fluids are not required to be disclosed to the Pennsylvania Department of Environmental Protection nor the general public. Many of these chemicals are well-known toxic chemicals that have carcinogenic, mutagenic and teratogenic health impacts. Although the concentration of chemical additives in fracturing fluid constitutes less than 2% volume, several millions gallons of water are used to frac each well. This translates into at least thousands of gallons of chemicals for each well. Hundreds of wells are operating in Pennsylvania at the current time and thousands more wells will be in operation. Because these chemicals are so insidious and present a threat to human health, they must be more carefully regulated.

DONNY MOHLER

Senior

**Environmental Sustainability and Art with an emphasis in
Studio Art***Edward Wells***Drilling For Natural Gas Vs. Revenue From Recreation:
A Comparative Analysis Of Revenue That Can Be Gen-
erated From Pennsylvania State Game, Forest, And Park
Lands**

This paper reviews the activity of horizontal drilling for natural gas. It discusses the purposes and management of Pennsylvania Game, Forest, and Parklands. It then performs an economic comparison of income generated on state game, forest, and parklands as they are currently managed versus the potential income that can be generated from drilling for shale gas on public lands.

JUDITH SCRIPTUNAS

Senior

Environmental Sustainability

Edward Wells

Oil And Gas Companies Should Be Held Liable For Stray Gas Migration Issues Resulting From The Marcellus Shale Play

Oil and Gas Companies participating in the Marcellus Shale Play should be required to adopt legacy wells, and be held liable for any stray gas incidents on land they are developing, whether the problem arises from a new well being drilled, or if drilling activity impacts an abandoned well or coal mine. With the rapid increase in drilling activity in the Marcellus Shale, the occurrence of incidents involving stray gas migration is also rising. New drilling is exacerbating the problem of stray gas migration, often through the installation of inadequate casing, but also by impacting old wells through hydraulic fracturing processes, including overpressurization of the new well.

Pennsylvania has a long history of drilling for gas and oil, with one estimate by the Independent Petroleum Association of America putting the total number of wells drilled since the mid 1800s at approximately 325,000. Although most legacy wells were plugged at the end of their productive life, in many instances the casings, and or plugs, have deteriorated to the point that they are no longer effective at containing the gas. Even if a new well is constructed to the highest possible standards, the processes employed with hydrofracturing can cause unintended migration through unknown or undocumented sources, placing those people living in the vicinity at risk. An operator that owns or leases property for the purpose of producing natural gas should be required to also accept ownership of, and liability for any abandoned wells on that property.

KIAH BERMAN

Senior

Spanish and International Studies*Amanda McMenamin*

The Spanish Imposition of Racial Hierarchy in Mexico

The history of Latin America is replete with politically supported racial hierarchies and the extensive marginalization of indigenous and African populations. In Mexican politics, this has led to racial and ethnic poverty, a racially constructed political system, and popular revolutions led by indigenous leaders like Poncho Villa and Emilio Zapata. Socially and culturally, the continued division of racial classes in a society that is so ethnically mixed and diverse has caused a profound identity crisis throughout Mexico's history in which the desire to become more European is conflicted with a yearning for a new identity autonomous from western influence. Furthermore, it has caused the internalization of racism in such a way that victims become self-hating perpetrators of the very racism that was originally inflicted upon them. The social climate that exists today is a result of the evolution of racist practices and beliefs imported to Latin America by the Spanish Conquistadors in the 15th and 16th centuries. In this thesis, I will explore and analyze three different aspects of Spanish colonization in Latin America, using Mexico as a model, and the ways in which these elements formulated the racial hierarchy that exists in the current society. I will look at economic marginalization through the racist practices surrounding land and property rights and the social and cultural marginalization through religious conversion and the imposition of language and identity.

JENNIFER FISHER

Senior

Fine Art with an emphasis in Studio Art
Minor in English

Philip Lindsey

Becoming

My art is an ongoing exploration of technique and color to outwardly express an idea, feeling, or inner reality. This is informed by life experience and the liberal arts. I work in abstraction because this style allows the integration of these differing influences and embraces the complexities that are me.



NINA LEON

Senior

**Fine Art with an emphasis in Studio Art
Minor in Sociology**

Robert K. Dickson

Cellophane

“Cellophane” is about a child’s life in New York City in which photography is used to tell the narrative. The images I have photographed are viewed from a micro-level. As Henri Nouwen wrote, “The more personal the journey the more universal it becomes.” Who we become is a sum of all our life experiences: We emerge as individuals. My art is not pretty but it is poetic -- a form of expression in which there is content. It is interactive and although there is a narrative, each image will stand on its own. The work is presented in chapters: Tourist New York, My New York, Addiction, Domestic Violence, Incarceration, and Hope. Cellophane is invisible and we often choose to make these social issues invisible. Just like cellophane.



XIAOMENG LI

Senior

Fine Art and Mass Communications

Robert Dickson

You Don't Know Me

This project entitled “You Don’t Know Me” consists of a series of black and white, gelatin silver print self-portraits that I took over the entire semester under different influences and emotional conditions. I wanted to explore the different facets of me that only existed once in my lifetime since each shooting session had a different mindset, environment, and influence.

This project is an organic whole. The subject matter is the same in all the photos, but merged with different conditions thus conveyed different emotions. I admit that these photos are all about me. They are different to some extent but none of them lies about my true identity. I am open for different interpretations; but it is my belief that to know someone is an ever-changing process and it even takes a long time for the artist herself to put all the pieces together without feeling confused and alienated from the various representations.

DONNY MOHLER

Senior

**Art with an emphasis in Studio Art
and Environmental Sustainability**

Philip Lindsey and Robert K. Dickson

Donny Scotland's Muleland

Taking the Mule where no Mule has gone before my work immerses the Mule in scenes from famous paintings and literature. These images are given new life with the inclusion and the illusion of the Mule. Share in my journey as I revisit my past and imagine where the future might take me - and the Mule.

**UTE CLINE**

Senior, Adult Degree Program

History and Political Science*Jill A. Hummer***Public Perception of Immigration Groups in the United States**

This research project examines public perceptions on immigrant groups in the United States, with a focus on contemporary European immigrants. While European immigrants are typically regarded with less prejudice than other groups, to what extent do they still experience discrimination? This study hypothesizes that prejudicial attitudes against Europeans will be dependent upon the extent to which the immigrants have assimilated to U.S. culture—mainly through language and religion. Attitudes will also be dependent upon the immigrant's country of origin within Europe. A public opinion survey administered to Wilson College students will be used to test the hypotheses.

**ALAINA HOFER**

Senior

History and Political Science*Kay Ackerman***Beware of the Company of Evil Women: the Complexity of Female Criminality in the Old Bailey Court Records, England 1690-1700**

Criminality in the Old Bailey Court Records, England 1690-1700

In Early Modern England, women who committed crimes in the London area found themselves before a judge at the Old Bailey. The Old Bailey, nickname of the present Central Criminal Court in England, was originally the site where only criminals accused of crimes committed in the city of London and Middlesex were tried. However, the Old Bailey became the primary source for all of criminal activity in the greater London area. Recently, its records have been made available online through the collaboration of the Open University and the Universities of Hertfordshire and Sheffield. This site contains court cases between the years of 1674 to 1834, from nonviolent to violent crimes, gendered crimes, and capital crimes. By taking a closer look at court cases during the years of 1690 to 1700, my research shows a transformation of women and the crimes they committed. The flexibility of women as providers, protectors, parents, and worker created a complex network of offenses committed in order to survive in early modern England. Questions asked include what patterns are present? Why were some women were repeat offenders? Did women commit crimes alone or in groups? The courts cases of these women will tell a story of how complicated life was, as women and criminals.

DEON SEEMAN

Senior

History and Political Science

*Kay Ackerman***The Federalists and the Anti-Federalists: The Connection between a college course entitled Introduction to Political Science and a High School Class called American Government**

The topic of the Federalists and Anti-Federalists bridged the gap between relating collegiate course information and teaching in a high school classroom. While the college class delved into the philosophies of important figures in United States history, the 11th grade class overviews America's system of government. Nevertheless, both courses converge when discussing the drafting and ratifying of the United States Constitution. With any issue, two opposing sides exist. During the outlining of the Constitution at the Constitutional Convention, two opinions arose. On the one side were the Federalists who believed that the national government's powers written in the Constitution were acceptable. On the other hand, the men that argued that Constitution gave too much power to the national government became known as the Anti-Federalists. Comparing and contrasting the two opinions with the high school students included working with the primary source document, The Federalist Papers and a persuasive letter assignment.

CHRISTINA SHICK

Senior

History and Political Science

*Kay Ackerman***From the Kitchen Table to the Bar Counter: Women's views on Alcohol and Prohibition**

My thesis focuses upon the effects of alcohol and prohibition on American women in the 1920's. It challenges the commonly accepted view that all women supported prohibition. Through my research I found there were some who were against prohibition and supported their husbands. Others enjoyed going out to the bars to escape from their traditional roles as wives and mothers in the home. I will be looking at different sources that examine women's roles and expectations in society and how alcohol changed that. Common topics that will be discussed are bars and speakeasies, alcohol as a social agent, and prohibition and its political implications. It will answer questions such as: How did alcohol affect women and their traditional roles in the 20's? How did Prohibition as a political movement affect women and their position in society?



ALEXANDRA THORPE

Senior

Psychology
Minor in Religion

Beverly Ayers-Nachamkin

Tomboyism and Stereotype Threat

My study examined the effects of stereotype threat on women's performance, as a function of whether or not they described themselves as having been tomboys before puberty. The participants were 39 freshman women from Wilson College. Based on their Tomboy Index Scores, females were assigned to either a tomboy or a nontomboy group. The participants were then randomly assigned to either a stereotype threat or a nonthreat condition. Participants in the stereotype threat condition were asked to complete a math test and were told that research had demonstrated gender differences on this test; males performed significantly better than females. Participants in the nonthreat condition were asked to complete the same test which was simply described as a problem-solving task. There was no significant difference in the test scores between participants in the stereotype threat and participants in the nonthreat condition. A possible explanation is that my study was conducted at a small, women's liberal arts college. Previous research has demonstrated that the effects of stereotype threat may be minimized at small liberal arts colleges (citation). There was also no significant difference in the test scores as a function of whether or not the participants were tomboys. Consistent with previous research, about 50% of the participants tested were tomboys before puberty, and as adults, women who were tomboys scored higher on the masculinity scale of the BSRI than women who were not tomboys.



JENNIFER M. TUCKER

Senior

Psychology
Minor in Biology

*Carl Larson, Beverly Ayers-Nachamkin,
and Brad E. Engle*

Serotonin Transporter Gene Polymorphism (5-HTTLPR) and Anxiety

A polymorphism in the serotonin transporter gene (5-HTTLPR) has been implicated in impaired amygdala- anterior cingulate cortex functional connectivity. Research indicates that this may lead to an array of psychological consequences including state anxiety. There has also been evidence to suggest an association between the polymorphism and trait anxiety, when coupled with certain significant life stressors such as abuse, neglect, trauma, and loss, particularly when these are recurrent. The current study seeks to determine whether the polymorphism influences state anxiety levels during the processing of emotional stimuli. It also seeks to confirm the relationship between significant life stressors and the 5-HTTLPR polymorphism in terms of trait anxiety. Twenty-nine female college students were asked to view an anxiety-inducing film while HR, EDR, respiration, and fNIR measures were collected and scored for recovery time. Participants also completed the IPAT self-report survey as a measure of trait anxiety. A MANOVA found no significant differences in state anxiety as a function of genotype. One-way ANOVAs also found no significant differences in trait anxiety as a function of genotype or the interaction between life stressors and genotype. One-way ANOVAs did find significant differences in trait anxiety as a function of exposure to violence and the interaction between exposure to violence and genotype. Further, one-way ANOVAs found differences in recovery times of electrodermal response and cerebral blood flow as a function of exposure to violence and the interaction between exposure to violence and major life stressors.

**KAREN HERMAN**

Senior

Sociology*Julie A. Raulli*

Exploring the Factors that Influence Peoples' Experience of Drug and/or Alcohol Treatment

Drug and alcohol abuse are pervasive social problems in the United States. They affect not only the individual but the family structure, which is important for building social and community values. Many people receive drug and alcohol treatment but many do not. Previous quantitative research shows that certain groups of people are more likely to receive treatment than others. This qualitative study explores how insurance type, acknowledgement of drug and/or alcohol abuse along with a willingness to change, group vs. individual therapy, and the relationship with the treatment counselor influence the treatment of those who receive drug and alcohol outpatient therapy. In-depth interviews were conducted at an outpatient drug and alcohol facility in south-central Pennsylvania. Qualitative data was collected from five males and one female, all Caucasian, between the ages of 21-47. Lack of health insurance coverage was the most frequently mentioned obstacle to continuing treatment among those interviewed. The respondent's acknowledgement of a drug or alcohol abuse problem, and a willingness to change because of it, were found to be necessities to successful treatment. Most of those interviewed preferred one-on-one drug and alcohol counseling rather than group therapy. All those interviewed reported a positive experience with their current treatment, and half of those interviewed stated specifically that their counselor made the treatment they were receiving as successful as possible.

**MELISSA MURPHY**

Senior

Women's Studies*Michael Cornelius***Sexual Agency in the Lais of Marie de France**

The twelfth century demanded providential order; men and women had their respective places in society. Men defined the roles of women, and the church (likewise governed by men) created and enforced a moral code deemed appropriate for them. In a society dominated by arranged marriages, a woman's destiny was almost entirely in the hands of men; she was virtually never considered an individual unto herself. The male needs and the male interest in controlling women – particularly in the realms of sexuality, formulated the social ideal deemed essential for women of the era. However, the *lais* of Marie de France present an unorthodox perception of women in medieval Europe refusing to accept their circumstances as inalterable. In the *lais*, Marie depicts women and men as equal partners in the making of sexual arrangements. She recognizes the repeated struggles of women to resist oppression and through her *lais* finds ways to change these conditions. In this study, I will demonstrate how Marie de France creates sexual agency for her female characters by critiquing secular and ecclesiastical marriage, identifying her position of adultery, and her construction of active female characters.