

GENESEO
RECOGNIZING
EXCELLENCE,
ACHIEVEMENT &
TALENT DAY

April 17, 2007



Welcome to SUNY Geneseo's First Annual G.R.E.A.T. Day!

Geneseo Recognizing Excellence, Achievement & Talent Day is a college-wide symposium celebrating the creative and scholarly endeavors of our students. In addition to recognizing the achievements of our students, the purpose of G.R.E.A.T. Day is to help foster academic excellence, encourage professional development, and build connections within the community.

The G.R.E.A.T. Day Planning Committee:

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The Planning Committee would like to thank: Stacie Anekstein, Ed Antkoviak, Brian Bennett, Cassie Brown, Michael Caputo, Sue Chichester, Betsy Colon, Laura Cook, Ann Crandall, Joe Dolce, Tammy Farrell, Carlo Filice, Richard Finkelstein, Karie Frisiras, Ginny Geer-Mentry, Becky Glass, Dave Gordon, Corey Ha, John Haley, Doug Harke, Gregg Hartvigsen, Tony Hoppa, Paul Jackson, Ellen Kintz, Nancy Johncox, Enrico Johnson, Ken Kallio, Jo Kirk, Sue Mallaber, Mary McCrank, Nancy Newcomb, Elizabeth Otero, Tracy Paradis, Jennifer Perry, Jewel Reardon, Ed Rivenburgh, Linda Shepard, Bonnie Swoger, Helen Thomas, Pam Thomas, and Taryn Thompson.

Thank you to President Christopher Dahl and Provost Katherine Conway-Turner for their support of G.R.E.A.T. Day.

Thank you to Lynn Weber for delivering our inaugural keynote address.

The G.R.E.A.T. Day name was suggested by Elizabeth Otero, a senior Philosophy major.

The G.R.E.A.T. Day logo was designed by Ed Antkoviak, Duplicating Center.

G.R.E.A.T. Day is funded by the Office of the Provost.

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First Annual
G.R.E.A.T. Day
Geneseo Recognizing Excellence, Achievement & Talent

April 17, 2007

Schedule of Events

- 8:00 – 8:45 AM** **Registration and Continental Breakfast**
MacVittie College Union Lobby
- Poster Presentation Setup, Milne Library First Floor Common Area and**
MacVittie College Union Ballroom
- 9:00 – 10:25** **Welcoming Remarks by Katherine Conway-Tuner, Provost**
- Artwork Exhibits, Kinetic Gallery, Union**
Poster Presentations, Milne Library and Union Ballroom
- 10:30 – 11:45** **Concurrent Presentations • Session 1**
- 11:45 – 1:00 PM** **Artwork Exhibits and Poster Presentations**
Buffet Luncheon, Union Ballroom
- 1:00 – 2:00** **Keynote Address, Wadsworth Auditorium**
- Introduction by Christopher Dahl, President**
- Lynn Weber, Ph.D.**
- Through a Fly's Eyes: Addressing Diversity in our***
Creative, Research, and Scholarly Endeavors
- 2:10 – 3:25** **Concurrent Presentations • Session 2**
- 3:30 – 4:45** **Concurrent Presentations • Session 3**
- 4:45 – 6:00** **Reception, Union Ballroom**
Remarks by Christopher Dahl, President
Artwork Exhibits and Poster Presentations
- 5:00** **Dance Performances, Union Ballroom Stage**

ARTWORK EXHIBITS

MacVittie College Union, Kinetic Gallery

Ben Keipper

Faculty Sponsor: Doug Anderson, School of the Arts

Spin the Bottle

Spin the Bottle is a full sized, full color comic rendered in charcoal, watercolor and pastel. It depicts a man and woman playing spin the bottle. The woman has spun the bottle, and it landed on the man. However, once that happened, she began to peel back her face, which was never her face at all, it would seem. Instead, she has revealed a hideous bug-like alien face that no one would dare kiss. Tough luck.

Picture-in-Picture

Picture-in-Picture is a full sized, full color comic rendered in charcoal, watercolor and pastel. It depicts a couple having a fight. Obviously the woman is very enraged and accusing. The man, however, has decided that he is no longer interested in the argument, and has secretly activated the picture-in-picture function of his glasses and is now watching a baseball game. Lucky dog.

Mayumi Kikuchi

Faculty Sponsor: Doug Anderson, School of the Arts

Tosca

Crucial moments --- heroines need to make decisions regarding whether or not to act on their beliefs to fight against their fatal fortunes. TOSCA, ANDROMAQUE, and PHADRE are passionate tragic heroines staked their lives for their beliefs. They struggle at crucial moments and want to defend their love! I was much impressed by the personalities of these characters and found similar elements among them. I drew three scenes from each story and added some new elements to it. My own interpretation of each character is included. I am happy that everybody will share the moments of pure integrity that I represent through my drawings. Sometimes these heroines tricked and deceived people, but other times their circumstances were destined by the gods. However, it is through these moments that a spiritual world arises by human beings, and everybody feels empathy for them. In the last scene of Tosca written by Victorien Sardou (1887), Tosca decides to follow her lover into death. She believes in true love and feels happy in her last moments. She tries to grasp the heavens with her outstretched hand and is confident in herself.

Andromaque

In Andromaque written by Jean Racine (1667), the title character, the widow of Hector and captive of Pyrrhus, is praying to the gods. Pyrrhus has offered to save Andromaque's son in exchange for her love. Andromaque must choose between her loyalty to her true love for Hector and her duty toward her son.

Phadre

Phadre, the title character of another play by J. Racine (1667), is the wife of Theseus, and loves Theseus's son. She suffers between her immoral mind and her love for Theseus's son. Stormy jealousy drives her eccentric actions and she is bound by the unchangeable destiny allotted to her by the gods.

Sara Oliver, Kristen Matheson, and Jaime Scherer

Faculty Sponsor: Doug Anderson, School of the Arts

Who We Are: A Collaboration

Exploration and experimentation are natural human behaviors. Society posts standards that deem what is appropriate and inappropriate. Based on these standards who we are and how we really feel may not be what we show the world. This collaboration demonstrates this very idea through the inner scope of the public, personal, and intimate lives of women.

Untitled 1

Beginning with the public, the viewer sees what the world sees of the woman. She knows the viewer is watching and has taken this into consideration, in terms of her appearance, demeanor, etc.

Untitled 2

The viewer then moves to the personal layer, which is a voyeuristic in nature. This section depicts what a woman would be doing at home, unaware that any outsiders are watching.

Untitled 3

Thirdly, the private section is an image that is known only to the woman herself. This image may be more representational of inner feelings, juxtaposed to the reality of image from the public life.

William Perkins

Faculty Sponsor: Doug Anderson, School of the Arts

Whoops

While still adhering to classic 2 dimensional design concepts and Drawing techniques, my work uses these rules and ideas for its own purposes to apply them to the field of pop art and Comic book layouts.

Hesitant

By being taught the classic styles and fundamental language of the arts, I can push the limits many other artistic avenues.

Cant Draw Hands

From story-boarding, Comic book layouts, and simple illustration or satire, each student has limitless possibilities open to them depending what they decided to take from SOTA's program.

Allison Pitkin

Faculty Sponsor: Doug Anderson, School of the Arts

Bear Layers

An oil painting on canvas. It is an abstract portrait of a woman, and her past, what makes her who she is.

Amy

An ink drawing of a woman using scribbles.

Honey

3-D piece made of heavy sugar glass.

Megan Testa

Faculty Sponsor: Jacalyn Eddy, Department of History

Alice**Dante's Inferno****The Light****Megan Webb**

Faculty Sponsor: Doug Anderson, School of the Arts

The House

I knew the mansion was old, but I didn't know quite what to expect. When I entered the dilapidated mansion, I saw the roof and floor caving in, the stairs collapsed on themselves, and the entire floor covered in a layer of garbage, debris, and once-useful items now cast away and forgotten. From the hand-carved woodwork and what remained of the wallpaper, one could surmise that the house had been gorgeous in its day – but that day was long past, and it saddened me. I am currently working on a photographic series about this house – its lost beauty and descent into decay. Photography, more than any other medium, is best suited to the task of documenting this "Posted" property. The viewer knows the subject is a real place, rather than a figment of the artist's imagination, and can thus experience and understand the reality of the decay of something that was once solid, secure, and thought by its inhabitants to be eternal and nigh indestructible. It was not a storm or a fire that caused this mansion to become uninhabitable; just the neglect of the people it belonged to. This picture is the house from the outside, uninhabitable.

The Door

This is the house from the dilapidated inside looking through a broken doorway to the cleanliness and freedom of the outside.

The Ghost

Originally there for another artist's photo shoot, the photo of the little boy standing in a half-collapsed room of the house becomes a ghost of the inhabitants that used to live there.

Thomas Wilder

Faculty Sponsor: David Granger, School of Education

Sully

A 4-by-6 black and white photograph mounted on white mounting board. It is of an overturned shopping cart and a homeless man completely covered by a checkered blanket inside of a graffiti-riddled concrete room. An open door illuminates the man.

Hui-Ching Yang

Faculty Sponsor: Doug Anderson, School of the Arts

A Pair

Perhaps because of my history of living within different cultures, I have always been fascinated by diversity. In jewelry and metalsmithing I love to draw attention to contrasting textures and colors. In life, I love to surround myself with people from diverse backgrounds. This piece illustrates what I have learned through my experiences; namely, that no matter what the surface differences, people can be connected by profound and powerful bonds that can turn the most dissimilar of individuals into "A Pair".

Bamboo Bowl

A bowl, particularly a rice bowl, represents many things in my culture. It stands for home, and nourishment, and security, for the support our parents provide. In this piece the bowl is supported by sections of bamboo. Parents want their children to be like bamboo. Like bamboo they should grow straight, and tall and strong. Like bamboo (which is hollow), they should not have any evil concealed within them. What you see on the surface is what they are. This piece really represents the ideal harmonious family. The parents, slightly worn and battered, yet still beautiful and functional, held aloft by healthy growing children.

POSTER PRESENTATIONS

Milne Library, First Floor Common Area

Living History: Notable Latin Americans of Yesterday and Today

Faculty Sponsor: Dr. Rose McEwen, Department of Foreign Languages & Literatures

This poster exhibit celebrates the accomplishments of some of the most notable Spanish Americans of yesterday and today. These iconic figures—major players in areas as diverse as political affairs, film, feminism and popular and fine arts—have caused an enduring effect in the lives of their fellow Latin Americans and inspired many others around the world. Each poster provides fundamental biographical information, descriptive images, and a summary of the key contributions that earned each of the Latin American figures depicted their prominence. This group poster exhibit is presented by students of the Contemporary Spanish American Civilization course (SPAN 314/414).

<i>Presenter</i>	<i>Poster Topic</i>	<i>Presenter</i>	<i>Poster Topic</i>
Valerie Abrigo	Augusto Pinochet	Rose McEwen	Hugo Chávez
Krystal Asher	Las Madres de la Plaza de Mayo	Kathleen O'Connell	Daniel Ortega
Ashley Campbell	Fidel Castro	Eric Perkowski	José Carlos Mariátegui
Meredith Cannella	Andrés Wood	Wendy Portillo	Las soldaderas
JoAnn Colaizzi	Pancho Villa	Caroline Poryles	Las arpilleras
Rachel Cudzilo	Evita Perón	Heidi Rausch	Oscar Romero
Marcie Estruch	Augusto César Sandino	Amy Reddy	Sor Juana Inés de la Cruz
Juliana Floret	Michelle Bachellet	Gretchen Rosales	Evo Morales
Katherine Freeman	Diego Rivera	Kimberly Rugg	Antonio Carlos Jobim
Tara Geil	Subcomandante Marcos	Amanda Sachs	Gabriel García Márquez
Tzeitel Hernandez	Julia Álvarez	Laurie Sadofsky	Bartolomé de Las Casas
Nicole Katz	Che Guevara	Inbal Shilor	Tomás Gutiérrez Alea
Monica Knoll	La Malinche	Katie Stapleton	Juan Domingo Perón
Nicole Leo	Carlos Gardel	Jeremy Stillman	César Chávez
Anna-Lisa Lysell	Frida Kahlo	Christina Szalinski	Alfonso Cuarón
Kathleen Marrero	José Guadalupe Posada	Jacqueline Wood	María Luisa Bemberg

POSTER PRESENTATIONS

MacVittie College Union, Ballroom

1: Michael Case

Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

Social, Economic, and Political Consequences of Overpopulation: A Global Perspective

Famine, drought, disease, widespread general poverty and armed conflict account for the majority of the significant global crises shaping international politics today. Most Americans are aware of the basic implications of these issues, but may not recognize the striking interconnectedness of each problem and the ways in which they interact. Human overpopulation is the unifying thread connecting each of these issues, and yet it is often overlooked when global policies are drafted. The importance of understanding the consequences of humanity's ever-expanding ability to affect our environment cannot be understated. More than ever, the international political, economic and environmental communities must be concerned with the consequences of mankind's actions as they pertain to our fragile ecology. The dangers of unchecked overpopulation and the exhaustion of precious fresh water resources are two of the most critical issues facing humanity in the next half-century. Said difficulties are likely to be at the center of political, environmental and socio-economic confrontations for many years ahead. Potential consequences of unchecked overpopulation can have adverse affects on issues such as food production, climate change, biodiversity, water rights, unemployment, energy and waste management. Awareness of these risks is crucial for all socially and environmentally conscious citizens.

2: Emily Hurley

Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

Western and African Perspectives on Psychological Therapy for Children Experiencing War Trauma in Mozambique and Uganda

An estimated 300,000 children around the world are serving in armed conflict. Even more are psychologically affected by the traumas of war. Using critical medical anthropology theory, one can understand how the mental health of these children is influenced by a number of factors including the mental vulnerability of children, the political arena, and economic conditions. We have seen these conditions lead to childhood trauma disorders in the cases of Mozambique and Uganda. These trauma disorders, such as post-traumatic stress disorder and dissociative disorders, are interpreted and treated differently by Western-style psychologists and traditional African healers. However, both approaches tend to be effective, and even more so when integrated. In the case of post-war Mozambique, we have learned that there is hope for these children to grow up to be functional members of societies. Culturally relevant therapies and healing practices, with the crucial help of a supportive community, can provide the best prognosis for children suffering from war trauma in places like present-day Uganda.

3: Olayinka Oyake

Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

Acute Health Problems in Nigeria's Niger-Delta: A Perspective from Critical Medical Anthropology

Nigeria, Africa's most populous nation is also Africa's largest oil producer. Since the launch of commercial oil production in 1958, Royal Dutch Shell Petroleum has pumped an estimated \$350billion worth of oil from Nigeria's oil rich Niger-Delta. Yet, local communities have gained relatively nothing in return, except for Shell Petroleum and the Nigerian government's exploitation of their natural resources, degradation of their lands and source of sustenance, violation of their human and civil rights, years of environmental degradation and above all, a trail of acute health problems. Shell has cut its production costs in Nigeria by using the "Gas Flaring Technique", which has been phased out in most developed nations. This is a process of burning-off surplus combustible vapors from oil wells as a means of disposal and is a significant source of greenhouse gas emissions. According to the environmental agency, "Friends of the Earth", Nigeria is the biggest Gas Flarer in the world accounting for 19.79% of the global amount flared. Residual gases from this technique are responsible for high rates of respiratory diseases like asthma, blood disorders like anemia and cancers like leukemia in the Niger Delta region.

4: Chelsea Schiano

Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

The Global Impact of Antibiotic Resistance

Antibiotics were one of the most important discoveries made in the last century. As a result of improper usage by all members of the global community, antibiotic-resistant strains of bacteria have emerged and become well-established world-wide. Multiple-drug resistant strains of bacteria flourish in health-care settings, and are moving into the community. This situation is unacceptable, and will lead to chaos if a bacterium gains resistance to all current antibiotics. Information on three antibiotic-resistant bacteria will be presented; the underlying causes of antibiotic resistance will be examined, as well as possible solutions and urgent adjustments that must be made in our usage of antibiotics.

5: Colin Waters

Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

Declining Oil. Growing Equitability?

Every nation in the world consumes fossil fuels. From transportation to energy production, from healthcare to food and water production, oil has become integrated at every level of society. With this in mind, it is important to recognize that fossil fuels are not a renewable resource, and that global supplies appear to be depleting at a rapid pace. Prominent geologists have estimated that peak oil will occur between 2010 and 2020, with peaks in natural gas and other non-coal fossil fuel resources occurring soon afterward. It is critical to examine the causes of oil dependence, the outlook of current sociopolitical forces in a post-peak world, and what can be done to ease the transition

from fossil fuels to alternatives. Not only can such examination help prevent socioeconomic collapse, it can also aid in the development of a more equitable distribution of resources based on sustainability and equality.

6: Alexandra Pifher

Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

An Assessment of the Public Health Conditions Created by Sierra Leone's Civil War

During the ten year civil war in Sierra Leone severe public health conditions developed which continue to affect the civilian population today. Mutilation, systematic sexual abuse and mass rape, torture, and child abduction were used by the Revolutionary United Front as tactics of terror specifically targeting civilians. The death toll estimates vary, from fifty to seventy-five thousand people. Thousands more were left mutilated and disfigured. Critical Medical Anthropology will serve as a tool to analyze specific violent tactics used, the goals of those who employed violent tactics, and how the violence of the civil war created severe public health conditions in the nation, both during and after the civil war. Amputees suffer from the physical pain of their injuries, cannot obtain medical care, are unable to work, and are malnourished. People continue to die from preventable causes, (diarrhea, malaria), because they lack access to medical care. The survivors of rape were left traumatized and were exposed to STDs. Children abducted by the rebels suffered terrible treatment and many were drugged, affecting their mental health. The society faces the impossible challenge of rehabilitating a victimized population, while at the same time lacking a health system that can provide basic services.

7: Alexandra Pifher

Faculty Sponsor: Edward Drachman, Department of Political Science and International Relations

How the Failures and Successes of the Guatemalan Peace Accord Have Shaped the Mayan Indian's Political, Economic, and Social Circumstances in the Present Day

The Guatemalan civil war claimed over 200,000 lives, an astonishing 93% lost to their own government's counterinsurgency. The vast majority of wartime fatalities were Mayan Indian. Between 1981 and 1983, the Guatemalan government unleashed their scorched earth policy in an attempt to exterminate the indigenous populations. The 1996 Guatemalan Peace Accord offered the Mayan Indian population in Guatemala for the first time in over thirty years felt a faint glimmer of hope that their dire situation might finally improve. However, if the political, economic, and social conditions that existed within Guatemala in the early and mid nineties before the signing of the Peace Agreement are analyzed and compared with the current political, economic, and social conditions in the state, concerning evidence arises suggesting that the Mayan population endure similar circumstances today, as they did before the Peace Agreement went into effect. An examination of the Peace Accord's goals, and its subsequent failures and successes, are essential to better understanding the situation Mayan Indians find themselves in the present day.

8: David Crego

Faculty Sponsor: Paul Pacheco, Department of Anthropology

Using Geographic Information Systems to Identify Relationships between Artifact Distribution and Site Features in Contemporary Archaeology

The purpose of this project was to incorporate all recovered cultural material from an archaeological excavation into a geographic information system (GIS) for the purpose of spatial analysis and site interpretation. The subject of the excavation was a Hopewell settlement located on the banks of the Scioto River near Chillicothe, Ohio. The site, identified as Brown's Bottom 1, lies on the Harness farm, and has been the subject of two consecutive field schools in 2005 and 2006. The first step of the project involved manually incorporating the temporal and spatial data from the site (essentially, the three dimensional location in the soil of the artifacts prior to excavation) into the GIS program. This data is then used to create a digitized map of the site, with each class of data represented as a separate layer which can be analyzed individually, or combined with other layers for a dynamic visual representation of the artifact distribution. I feel this project has demonstrated the value of using a GIS in archaeology, highlighted by its ability to dynamically display spatial orientation, a crucial element in site analysis and interpretation.

9: Jon Gauthier

Faculty Sponsor: Paul Pacheco, Department of Anthropology

Ceramic Analysis of Brown's Bottom #1 (33Ro1104)

This poster is an analysis of the ceramic assemblage collected at Brown's Bottom #1 (33Ro1104) in Ross County, Ohio by the 2005-2006 SUNY Geneseo Archaeological Field Schools. Each individual sherd was categorized according to specific parameters such as size class, weight, surface treatment, etc., while inferences regarding construction and function were drawn from re-fitted vessels. These findings were compared with data collected from other Hopewell sites throughout Ohio, which were used to draw conclusions about the significance of the Brown's Bottom #1 site as a whole.

10: Ying Ip

Faculty Sponsor: Paul Pacheco, Department of Anthropology

Mica Crafting at Brown's Bottom #1 (33Ro1104)

My poster centers on the mica artifacts recovered from the Ohio Hopewell habitation site of Brown's Bottom #1 (33Ro1104) during the summers of 2005 and 2006. Several of the mica artifacts exhibit cut edges. One of the more interesting of these is a possible animal effigy that was discovered folded upon itself within Feature 16, a thermal basin located along the northeast wall of Structure 1. While there have been many mica artifacts excavated from Hopewell burial mounds, there is little literature on who created these craft items, including where this production took place. I theorize that the Hopewell participated in domestic craft specialization, explaining the rarity of mica debitage at earthworks. The Brown's Bottom #1 mica flakes may represent cut scraps and debris, and even perhaps a discarded cutout.

11: Kathryn Meyers

Faculty Sponsor: Paul Pacheco, Department of Anthropology

Tool Kit? Understanding the Assemblage from F196, Brown's Bottom #1

During the 2006 excavation at Brown's Bottom #1, near Chillicothe, Ohio, an assemblage of Hopewell tools, excavated from feature 196, appear to have more in common than just their provenience. This poster focuses on research done to determine whether this assemblage constitutes a "tool kit" or are merely secondary refuse accumulated in a casual fashion during the occupation of the Brown's Bottom #1 hamlet. A "tool kit" is defined as a set of related tools used for a specific task. To determine this, the various tools were identified and then compared with activities the Hopewell engaged in. It is important to determine the status of these tools, as it could imply household specialization and cultural craft activities extending beyond their earthworks.

12: Carly Zampariello and Rocky Brockway

Faculty Sponsors: Paul Pacheco, Department of Anthropology, and Eric Helms, Department of Chemistry

Chemical Analysis of Prehistoric Ceramic Vessels and Residues

In order to gather more information about food items utilized by the Hopewell and the related functions served by their domestic ceramic vessels, chemical tests and procedures were performed on several potsherds from the Brown's Bottom archaeological site in Chillicothe, Ohio. We have analyzed the charred residues from several potsherds using infrared spectroscopy, gas chromatography, and mass spectrometry. Results have suggested the presence of long-chain fatty acids and hydrocarbons, giving evidence that the ceramic vessels may have been used for cooking or extracting materials from plants or animals. We are presently conducting experiments to test for the presence of blood and plant peroxidases, that would indicate which type of organic material, plant or animal, may have been present in the vessels. We are also continuing with the GC-MS analysis of the residues through derivatization of fatty acids.

13: Jaclyn Costanzo and Sara Oliver

Faculty Sponsor: Doug Anderson, School of the Arts

Silkscreening

The purpose of this poster is to educate students on the processes involved with silkscreening an image. By using photographs and informative text we will break the process down step-by-step, explaining different elements of silkscreening (i.e. emulsion, shooting a screen.) Starting with a drawn image, the poster will cover the process until a finished product is produced.

14: Tracy Gosda

Faculty Sponsor: Doug Anderson, School of the Arts

Measure of Wealth

My poster will be an outline of the project I will be doing for my senior show. The idea is based on the concept of world currencies – I am going to have a table set up with bowls of rice on them. The bowls will be filled with rice proportionate to a sampling of relative values of currency in the world. For the poster display I want to include images of the project set up, and also explain more of the research that went behind the development of the project. I will do this by taking a few specific currencies and writing up what they are and what bracket they fit into.

15: Jonathan Greene and Laura Janik

Faculty Sponsor: Susan Bandoni Muench, Department of Biology

The Effect of Parasitism on the Anti-Predator Behavior of *Planorbella* Snails

Obligate parasites with two or more hosts must transfer from one host to another in order to complete development. Some parasites have exhibited the ability to change their host's behavior to improve the chances of this transfer. We investigated the effects of trematode parasites on a response to simulated predation in the freshwater pulmonate snail *Planorbella trivolvis*. In response to chemical cues from a crushed snail, these snails will crawl out of the water or under a refuge. We observed and recorded the behavior of snails sharing a container with a crushed snail in a vial with a mesh top. We then dissected the snails after recording their behavior and any parasites found were identified. Our results suggest that the presence of parasites does not alter anti-predator behavior, although our sample sizes are small.

16: Jonathan Greene and Laura Janik

Faculty Sponsor: Susan Bandoni Muench, Department of Biology

Courtship Behavior in *Planorbella trivolvis*

In simultaneous hermaphrodites, copulation includes two decisions, whether or not to mate, and in which role, male or female. Reciprocity in hermaphroditic snail sexual reproduction occurs when a snail plays both gender roles in a single mating encounter. In some hermaphrodites, individuals may exhibit functional gender, playing one role preferentially. During courtship, gender conflict can occur when both partners seek to play the same role, usually male. We studied courtship in *Planorbella trivolvis* to determine whether this species exhibits functional gender, reciprocity or gender conflict. Snails were isolated for a period of one week and then paired and observed. Gender conflict was observed, with snails exhibiting shell swinging and biting.

17: David Hoekstra and Ben Povinelli

Faculty Sponsor: Isidro Bosch, Department of Biology

The Effect of Solar Powered Water Circulators on the Water Quality for Conesus Lake

Conesus Lake is the primary source of drinking water for Geneseo and other local communities. The lake in recent years has experienced a decline in water quality, including increases in turbidity, microbial contamination, blooms of filamentous algae, and biomass of the invasive weed Eurasian Water milfoil (*Myriophyllum spicatum*). In the spring 2006, 3 solar powered water circulators (Solar Bee's) were

placed at two different locations in Conesus Lake. SolarBee units have reportedly improved water quality in smaller lakes and ponds, but this is the first test of their effectiveness in the Finger Lakes. To document their impact in Conesus Lake, we monitored water quality parameters on a weekly basis from May 20th to September 29th 2006. Our analysis revealed statistically significant differences in turbidity, pH, and dissolved ions ($p < 0.05$, 2 Factor ANOVA) between experimental sites and reference sites. These differences support the hypothesis that the SolarBee units were effective in improving some aspects of water quality, but plant and microbial growth was apparently not significantly impacted. The units will be redeployed in 2007 and additional environmental monitoring is scheduled before any final conclusions can be.... This research was supported by the Geneseo Foundation and by a grant from the Livingston County Planning Department.

18: Tom Gallagher

Faculty Sponsor: George Briggs, Department of Biology

Effect of Increased Light Intensity on Photosynthetic Rate Recovery of Drought Stressed Plants

Drought affects plants in several ways, including limiting the growth. This is a serious factor with people being dependant on crop growth worldwide. Drought is known to greatly reduce photosynthesis, both from a closure of the stomata, as well as other disruptions in the photosynthetic process. We are studying the photosynthetic capacity of under drought conditions of radishes (*Raphanus sativus* L.). We are also studying whether an increase in the light intensity during drought conditions enhances the effects of drought. We have already found that the photosynthetic rates of 21-day old radish plants decreased when exposed to a single drought cycle. These plants have shown recovery of photosynthetic ability after being watered. Rate of photosynthesis and internal carbon levels are measured at a saturating light level of 1000 $\mu\text{M cm}^{-1}\text{s}^{-1}$, using a Licor LI 6400 photosynthesis system.

19: Kristin Wolbert and Nicole Brunet

Faculty Sponsor: George Briggs, Department of Biology

Photosynthetic Contribution of Developing Fruits of *Brassica rapa*

For most plants the photosynthetic contribution of developing fruits is small because they represent a small and temporary photosynthetic surface relative to the rest of the plant. However, for a small, short-lived determinate plant the contribution might be more significant. We investigated the photosynthetic contribution of developing fruits to the carbon budget of *Brassica rapa*, a 'fast-plant' developed to complete its life cycle in five weeks. Plants were grown in a growth chamber under continuous illumination and photosynthetic carbon assimilation was measured using a Licor LI-6400 photosynthetic system at saturating light intensities. We found *Brassica* pods to have a carbon assimilation rate as high as 14 $\mu\text{mol m}^{-2}\text{s}^{-1}$, close to the maximum rate found for leaves. Since the pod respiration rate is quite high, and much higher than that of leaves, the gross photosynthetic rate for pods may exceed that of leaves, when expressed on an area basis. Additional information on the changes in pod photosynthetic rate with time and the contribution of pods to the total carbohydrate budget of *Brassica rapa* will be presented.

20: Laura Janik

Faculty Sponsor: Kristina Hannam, Department of Biology

Immunological Health and Body Condition in Migrant Birds

Due to their long-distance travels, and the habitats they encounter along the way, migratory birds are exposed to a broad range of parasites, pathogens and diseases. The immune system is the primary means of defense against these microorganisms however it may be affected by the stress of migration. Signs of immune system stress as well as poor body condition might be seen in migrant birds. In 2002, blood samples were taken from about 60 birds at the Braddock Bay Bird Observatory during fall migration. Additional blood samples taken from the same species (Gray Catbirds, Hermit Thrushes, Grey Cheeked Thrushes, Swainson's Thrush and Wood Thrush) were collected during the fall of 2006. Immunological health was measured by examining the different white blood cells present in the birds' blood. Energetic condition was determined through the use a 0-5 fat score (Less fat indicated by 0, more fat by 5) and compared to the size of the bird. Low fat scores were prevalent, and there were low levels of white blood cells in the blood samples. The results indicated that poor energetic condition is positively correlated with poor immunological health.

21: Sara Kassmann, Amanda Kuntz and Kara Fedors

Faculty Sponsor: Kristina Hannam, Department of Biology

Non-Vocal Begging Signals in the House Wren (*Troglodytes aedon*)

House Wren nestlings (*Troglodytes aedon*) compete with one another for access to parental resources using vocal and non-vocal signals. We are interested in whether non-vocal aspects of begging, such as nest position and posture, may influence who is fed. Begging data was gathered from nestboxes on private land around Geneseo, NY. During the summers of 2005 & 2006, audio and video recordings were taken of nestlings at various stages of development: early (day 4-5), middle (day 7-8) and late (day 10+). Video recordings were each one hour long and were captured on the nest as a whole. Videos were analyzed in the lab to determine for each begging bout: whether the parent was present or absent, and each nestling's position in the nest, and timing and intensity of begging. Preliminary results from 2005 indicate that the nestling position relative to the parent, intensity of begging, and being first to beg all significantly influence the probability of being fed. Begging intensity and timing were highly correlated. We will present results from both years testing the hypothesis that nestling non-vocal begging strategies change over developmental time.

22: Daniel FitzGerald

Faculty Sponsors: Gregg Hartvigsen, Department of Biology, and Chris Leary, Department of Mathematics

Cooperative Dynamics in Small World Networks

Cooperation between individuals in both human societies and biological systems has long been studied. A new model of cooperation is introduced that tracks the probability that each individual carries of cooperating with another as they interact in a small world network. In

such a network, clustering coefficients are generally high with low average path lengths. By altering the probability that a given edge can be rewired, we can make the network increasingly random. We study how changing the structure of the network affects the likelihood of cooperation and find that clusters of cooperators and defectors emerge in a small but intriguing portion of parameter space. Increasing network randomness makes cooperation more likely. Furthermore, as network randomness increases, cooperators and defectors form two separate components. With high levels of randomness, the component of defectors becomes fragmented into isolated pure defectors surrounded by cooperators.

23: Colin Kremer

Faculty Sponsors: Greg Hartvigsen, Department of Biology, and Gary Towsley, Department of Mathematics

Chaotic Dynamics Lost in Small-World Network Metapopulations

Chaotic population dynamics predicted by mathematical models are rarely observed in empirical systems, perhaps because of moderating interactions, such as the dispersal of organisms in space, occurring within empirical systems but not captured by current models. Or, the observation of chaotic dynamics may depend on the scale at which empirical systems are studied. To study the influence of these factors on chaotic population dynamics, we construct a metapopulation model composed of subpopulations governed independently by the logistic growth equation under chaotic conditions. Subpopulations are connected on a small-world network, rather than a more traditional lattice structure. We test both density dependent and independent dispersal between subpopulations and consider the effects of varying dispersal levels and network structure. We present a method for estimating the maximum Lyapunov exponent, used to determine chaotic behavior in this complex system. We find that a metapopulation's dynamics remain chaotic despite an increase in the number of subpopulations. Under high levels of dispersal on random graphs, non-chaotic metapopulation dynamics are observed. We found no significant difference between dispersal types. These results suggest that the dispersal of organisms in space within empirical systems can moderate underlying chaotic dynamics, possibly accounting for discrepancies between theoretical and empirical dynamics.

24: Schuyler Wood and Arkadiy Yaretskiy

Faculty Sponsors: Harold Hoops, Department of Biology, and Rita Miller, Department of Biology, University of Rochester

Deletion of WSS1, a Protein of the Sumoylation Pathway, Does Not Result in Altered Spindle Positioning or Orientation in Early Spindles of the Yeast *Saccharomyces cerevisiae*

Spindle positioning in yeast cells requires the coordinated action of multiple spindle-positioning proteins. Although there is substantial genetic and biochemical evidence of interactions between these proteins, how these interactions occurs is not well understood. Sumoylation is a post-translational modification that results in attachment of SUMO (the small, ubiquitin-like modifier protein) to target proteins. Unlike the ubiquitin-proteasome pathway, however, sumoylation targets are not destroyed, but rather relocate in cells. Recently Meednu et al. (submitted) have shown genetic and biochemical interactions between the sumoylation machinery and spindle positioning proteins. We hypothesize that defects in the sumoylation pathway might alter spindle positioning or dynamics. In this study, we replaced the alpha tubulin gene with a tubulin•GFP construct and used live cell fluorescence microscopy to compare the position and orientation of early bipolar spindles in cells that lacked the WSS1 gene and in control cells. We found no difference in orientation or spindle positioning, suggesting that early stages of spindle positioning do not require Wss1p. It remains possible that Wss1p has an effect on other aspects of spindle positioning or that effects of sumoylation might not involve the Wss1p protein.

25: Erin Strobl

Faculty Sponsor: Jani Lewis, Department of Biology

Is Loss of Dexamethasone Induced E-Cadherin Stress-Related?

Cadherins are glycoproteins that are crucial in the maintenance of cellular organization through calcium dependent mediation of cell-cell interactions. In many types of cancer loss of Epithelial cadherin (E-cad) leads to decreased cellular adhesion, loss of contact inhibition, and increased proliferation, which are observed characteristics of carcinogenesis. Therefore, E-cad expression plays an integral role as a tumor suppressor and loss of E-cad provides a marker to define tumor differentiation. Dexamethasone (dex) is a steroid hormone that acts as an anti-inflammatory and immunosuppressant. The vulvar carcinoma cell line, A431, experience a loss of E-cad upon addition of dex. The aim of this study was to determine if A431 cells that had been "stressed" were more susceptible to loss of E-cad by dex. A431 cells were grown at 37°C in the presence of dex under "stressful" conditions. Stressful conditions were defined as growth in sealed flasks so as not to allow any gas exchange with the outside environment. The cells were then returned to normal growth conditions (37°C, 5%CO₂, 95% air) and assayed by immunofluorescence for E-cad expression at 1 and 2 week time points post stress treatment. The results showed no significant difference between the "stressed" and control populations of cells in dex-induced loss of E-cad or overall morphological appearance.

26: Mark Marinescu

Faculty Sponsor: Jani Lewis, Department of Biology

Involvement of Several Transcription Factors in the Loss of E-Cadherin through Dexamethasone Treatment of a Vulvar Carcinoma Cell Line

Certain epithelial cancers, which lose their ability to express specific cell-cell junction proteins, often develop into more aggressive carcinomas (Bolós et al., 2002). The cause of junction protein loss is varied and not fully understood. The vulvar cancer cell line A2P2 experiences loss of the cell-cell junction protein Epithelial (E)-cadherin when treated with dexamethasone (dex). Dex is a glucocorticoid which is mainly used in anti-inflammatory medications (Lewis et al., 1997). Recent research indicates that the transcription factors Snail, Sip1, and Slug can modulate E-cadherin expression (Cano et al., 2000; Bolós et al., 2002; Comijn et al., 2001; Battle et al., 2000). My project involves analysis of these transcription factors, and others, in the regulation of E-cadherin by dexamethasone in A431 cells. I am using reverse transcription (RT) PCR to examine whether there are changes in the level of expression of these transcription factors. Using total RNA extracted from the A431 cell line my work has thus far shown a definitive decrease in E-cadherin expression post dex treatment

using the RT PCR method. These results validate the technique and highlight its potential value at determining the expression of other transcription factors.

27: Diana Meskill and Paul Valenti

Faculty Sponsor: Kevin Militello, Department of Biology

Developmentally Regulated Expression of a Cytosine-5 DNA Methyltransferase Gene in African Trypanosomes

The protozoan parasite *Trypanosoma brucei* causes Human African Trypanosomiasis; a fatal disease if untreated. Variant surface glycoproteins (VSGs) found on the surface of the organism present a major challenge in vaccine design because they are constantly changing. Our recent bioinformatic analysis suggests that a cytosine-5 DNA methyltransferase gene exists in the genome. Our hypothesis is that the *T. brucei* cytosine-5 DNA methyltransferase gene is contributing to the expression of VSGs through DNA methylation, which is known to silence genes in eukaryotes. Our first step toward analyzing this cytosine-5 DNA methyltransferase gene was to determine if the mRNA is present by performing RT-PCR and 5' and 3' RACE. This procedure demonstrated that a transcript exists for this gene. The 5' and 3' ends of the transcript are consistent with the gene prediction from the *T. brucei* genome annotation. To determine the life cycle stage in which transcript is present, RT-PCR was performed with RNA isolated from different life cycle stages. It was determined that this transcript is abundant in the procyclic form (insect), and present at low levels in the blood stage form. Thus, this transcript is developmentally regulated and further functional studies of the protein are in progress.

28: Jenna Tabor-Godwin and Kristi Dodd

Faculty Sponsor: Kevin Militello, Department of Biology

Optimizing Synthesis and Solubility of the *Trypanosoma brucei* Cytosine-5 DNA Methyltransferase Protein in *E. coli*

Human African Trypanosomiasis (HAT), commonly known as African Sleeping Sickness, is a serious disease caused by the protozoan parasite *Trypanosoma brucei*. A major obstacle in treating HAT is the variant surface glycoproteins (VSGs) found on the exterior of the organism. After a recent bioinformatics search, a cytosine-5 DNA methyltransferase gene was identified based on homology to known prokaryotic cytosine-5 DNA methyltransferase genes. Based on data from other organisms, we postulate that the *T. brucei* cytosine-5 DNA methyltransferase gene contributes to the regulation of VSG expression through DNA methylation. Initially, the entire coding region of the gene and the enzymatic domain were amplified via PCR and inserted into various protein expression vectors for *E. coli*. After introduction into *E. coli*, the expression and solubility of the proteins were optimized. In conclusion, the proteins were synthesized under all conditions tested. However, the protein was generally insoluble except for small amounts of soluble protein produced from certain vectors, including pET151-D and pMALc2. After observing hints of solubility, the full-length protein was purified successfully via Ni-NTA affinity chromatography. In vitro DNA methylation assays with this protein will follow in order to determine whether the protein is truly a cytosine-5 DNA methyltransferase gene.

29: Peter DiGennaro and Xuan Wang

Faculty Sponsor: Ming-Mei Chang, Department of Biology

Identification of a Selectable Marker for Disease Resistance in Grapes

A major class of disease resistance genes is known to contain nucleotide binding sites (NBS) and leucine rich repeats (LRR). Since these highly conserved structures are common in plant disease resistance genes, we can isolate new resistance genes based on these homologous sequences. To PCR clone the disease resistance genes from a known resistant grape cultivar (Cynthiana), we used degenerate primers corresponding to known NBS sequences from other plant species. Among the four primer sets tested, the LM primers (forward and reverse) produced a ~500 bp DNA band which may contain more than one type of DNA fragment. Due to the high degree of degeneracy in the primers, the ~500 bp DNA band was amplified in both susceptible and resistant cultivars. To identify DNA fragment(s) present only in the resistant cultivar, a Southern blot analysis was performed using genomic DNAs from five grape cultivars with various degree of disease susceptibility. Using the ~500 bp PCR-amplified DNAs from Cynthiana as a probe, we observed a DNA band unique to this cultivar. Further differential colony hybridization and sequencing are underway. If confirmed, this DNA fragment can be used as a disease resistance marker in breeding programs.

30: Ben Povinelli and Matt MacGilvray

Faculty Sponsor: Robert O'Donnell, Department of Biology

The Effects of Col-3 on the Cell Cycle and Growth on a Human Breast Cancer Cell Line

A study is underway determine the effect of Col-3, a metalloprotease inhibitor, on a human breast cancer cell line using cell cycle analysis by flow cytometry. The cells will be grown for 72 hours, the last 24 hours in Col-3 in DMSO or DMSO alone as a control. The cells will then be fixed in ethanol and stained with ethidium bromide in order to determine the percentage of cells in each phase of the cell cycle using a FACS-Calibur Flow Cytometer. In preliminary experiments using untreated cells, we determined that the proportion of the cells in G1, S, and G2/M were 60%, 38%, and 12% respectively. Because of the previously shown catatonic effects on these cells, we expect that the cell cycle will be disrupted but it is unclear whether apoptotic cells will be observed (a DNA content less than the G1 peak). These results will provide a better understanding of other mechanisms by which this drug might inhibit cancer growth.

31: Anne Finn and Corey Teagarden

Faculty Sponsor: Robert O'Donnell, Department of Biology

Epidermal Growth Factor Receptor

Epidermal growth factor receptor (EGFR) is a transmembrane protein with intrinsic tyrosine kinase activity that is expressed by a variety of normal and tumor cells. Overexpression of the EGFR has been associated with a worse prognosis in cancer patients compared to those patients with normal levels of EGFR in their cancer. Last year, we learned to grow human breast cancer cells in tissue culture and assay them for the EGF receptor expression using direct immunofluorescence with a fluorescein isothiocyanate (FITC)-conjugated anti-EGFR antibody. Although the positive control, A431 cells expressed high levels of EGFR, the three breast cancer cell lines were negative. In an attempt to determine if EGFR could be upregulated, we hypothesized that serum deprivation might force the cells to upregulate expression of the EGFR. Using the positive A431 cells in preliminary experiments, we found the exact opposite. Cells grown in 15% Fetal Bovine Serum had a higher expression of EGFR than cells at 0%, 5%, 10%, 20% and 25% FBS. Experiments are underway to determine if one of the negative breast cancer cell lines will also upregulate EGFR in response to higher serum concentrations. Understanding what controls EGFR expression will aid in the immunotherapeutic treatment of cancer where EGFR expression is targeted.

32: Aaron Brubaker

Faculty Sponsor: David Geiger, Department of Chemistry

Safer "Green" Primary Explosives

Primary explosives are categorized as explosives that are extremely easy to detonate or initiate. They are generally used in small amounts to detonate a main charge or secondary explosive which is generally much more difficult to initiate. Primary explosives are mainly used for industrial purposes such as in mines or road construction and in ammunition propellants. Some of the most common primary explosives used today are dangerous because of their lead content. When these explosives detonate, they release lead residues that are exposed to workers and the environment. Researchers from UNC have synthesized several new types of primary explosives that are much safer for people and the environment because they do not contain any lead and therefore no post-detonation lead residue. These new explosives are called "green" explosives. We will examine the thermodynamics for the detonation reaction using the commercially available molecular modeling program Spartan. The results will be compared to calculations performed on traditional explosives.

33: Matthew Cain

Faculty Sponsor: David Geiger, Department of Chemistry

Synthesis and Characterization of an Unsymmetrical Ruthenium(II) Tris(diimine) Complex Bearing a Connecting Appendage

Energy and/or electron transfer between metal ions is a process that is of interest for a myriad of reasons including its relevance to biological systems (e.g., respiration and photosynthesis), potential solar energy conversion processes, chemical sensors and displays. Perhaps the most studied transition metal complex in the history of chemistry, tris(bipyridine)ruthenium(II), exhibits photophysical properties that include the formation of a luminescent metal-to-ligand charge transfer excited state with a high quantum yield. This charge-transfer excited state is both a better oxidant and a better reductant than the ground state. We have synthesized an analogue that possesses a phenanthroline ligand that has the ability to bridge to a second metal ion. We will present details of the synthesis and results of studies with two different chemical excited-state quenchers. A comparison of the results with the parent ruthenium compound and another similar complex without a bridging appendage will be made.

34: Matthew Cain

Faculty Sponsor: David Geiger, Department of Chemistry

Analysis of Spartan Calculations on Common 18 Electron Metallocenes

A series of Spartan calculations were conducted in conjunction with literature sources to determine the nature of the manganocene anion, ferrocene, and the cobaltocene cation. Existing in the aforementioned states, each metallocene obeys the 18 electron rule, and was analyzed either in its eclipsed (D_{5h}) or staggered (D_{5d}) form. The low staggered-eclipsed conversion barriers characteristic of metallocenes is supported by Spartan with only minute differences in the heats of formation being observed, which would be expected given that the cyclopentadienyl (Cp) rings are quite fluxional. The bond distance between the central metal atom and the η^5 -coordinated Cp ring were seen to increase in the order cobaltocene < ferrocene < manganocene. Lastly, an entire set of molecular orbital calculations were performed and investigated. A loss of symmetry was seen for ferrocene and manganocene in their D_{5h} form, but was believed to be overcome through an in-depth analysis of the analogous cobaltocene cation. A molecular orbital diagram with the corresponding SALCs was then constructed for both the D_{5d} and D_{5h} conformations.

35: Katherine Kolesar

Faculty Sponsor: David Geiger, Department of Chemistry

Bonding in Alkylboron and Alkylaluminum Hydrides: A Theoretical Study

Aluminum and boron are known to form dibridged compounds in which the bridging groups possess nontraditional coordination modes requiring delocalized bonding. Examples include $Al_2H_2(CH_3)_4$ and $B_2H_2(CH_3)_4$. The degree of directional overlap in these compounds is related to the identity and position of the bonded functional groups. Utilizing the commercially available software package Spartan Essentials, semi-empirical molecular orbital calculations will be used to determine optimized geometries of a series of complexes. We will present our findings for molecules in which the bridging and nonbridging functional groups have been varied. In addition, a fragment analysis will be performed to assess the stability of the bridging complexes relative to non-bridged three-coordinate compounds. Semi-empirical PM3 calculations will be employed to determine the enthalpies for the reaction of two identical fragments to form the corresponding bridged compounds.

36: Dara Omer

Faculty Sponsor: David Geiger, Department of Chemistry

Synthesis of New Phenanthroline Bridging Ligands

The construction of multi-metal systems bridged by ligands capable of transferring charge has potential use in applications ranging from solar energy conversion to chemical sensors. Our work involves the synthesis of ligands that possess the features that are prerequisite for use in such systems. These features include extended conjugation to facilitate charge transfer, excited-state chemistry that involves a significant charge transfer component, and chemical robustness. Phenanthroline ligands are known to possess all of these characteristics. Utilizing chemistry pioneered in our laboratory, we seek to prepare phenanthroline analogues with a substituent that extends the conjugation to a second metal-binding center. In particular, we are preparing 5-(4-ethynylaniline)-phenanthroline. The synthetic strategy and progress to date will be described.

37: Marie Pacholec

Faculty Sponsors: David Geiger and Cristina Geiger, Department of Chemistry

Progress Toward the Preparation of a Cholesterol-Based Organogel Incorporating a Luminescent Platinum(II) Complex

Square planar platinum(II) diimine complexes in which the coordination sphere is completed with strong sigma donor ligands (e.g., bis(alkynyl) or dithiolate ligands) exhibit properties that make them good candidates for applications ranging from solar energy conversion devices to chemical sensors. Previous work in our laboratory has shown that these complexes exhibit the formation of excimers that display luminescence red-shifted from excited state monomers. An understanding of the geometrical parameters associated with the excimers is a prerequisite for the development of useful systems employing these chromophores. Our approach to this problem involves confining platinum complexes to a restricted geometry employing their incorporation into a cholesterol-based organogel. The synthetic strategy and progress to date will be presented.

38: Caroline Poryles

Faculty Sponsor: David Geiger, Department of Chemistry

An Examination of Relative Acid-Base Strength Using Semi-Empirical Molecular Orbital Calculations

Molecular orbital calculations have been used to explore the factors influencing Lewis acid-base strength. Our results are compared and contrasted with the results reported in the literature using ab initio techniques. According to the literature, Lewis acid strength changes with respect to strong or weak Lewis bases. Therefore, BCl_3 is a stronger Lewis acid with respect to strong bases and BF_3 is stronger with respect to weak bases. We compare the relative heats of reaction for adduct formation using heats of formation obtained from semi-empirical molecular orbital calculations. In addition, it has been reported in the literature that geometrical distortion from planar to pyramidal accompanies adduct formation with a strong base with BX_3 , and hence electrostatics govern the acidity when dealing with strong acid-weak base complexes. PM3 molecular orbital calculations of HOMO-LUMO energies will also be reported. We are exploring the premise that the stronger back-donation from fluorine compared to chlorine decreases the availability of the otherwise empty 2p orbital on boron for accepting an electron pair and hence the trend should show a energetically lower lying LUMO in BCl_3 .

39: Zachary Schepart

Faculty Sponsor: David Geiger, Department of Chemistry

An Exploration of Structure and Bonding in Piano Stool Complexes

We will present the results of our theoretical investigation of piano stool complexes obtained using semi-empirical molecular orbital PM3 utility on the commercially available software package Spartan ES. The complex consists of a transition metal, such as chromium, coordinated to benzene and three carbon monoxide ligands. This complex falls under the broad category of cyclic polyene complexes, which are arguably the most important ligands in organometallic chemistry. These complexes exhibit great stability, largely due to their adherence to the 18-electron rule. We are exploring the importance of ring substitution, metal oxidation state, and the identity of the transition metal on the overall stability of the complex. The nature of the bonding will be explored by comparing the calculated geometrical parameters such as metal ligand bond distances, the calculated CO stretching frequencies, and the overall distribution of electron density.

40: Paul Schneeberger Jr.

Faculty Sponsor: David Geiger, Department of Chemistry

A Theoretical Examination of GaH_6^{3-} and AlH_6^{3-} Using the PM3 Semi-Empirical Molecular Orbital Method

A molecular orbital study of GaH_6^{3-} and AlH_6^{3-} will be presented. The study will attempt to explain some of the aspects of the coordination preferences of Al versus Ga on the basis of computational results. The nature of the bonding in each of the complexes will be explored and then molecular orbital diagrams will be formulated using the energies of the orbitals obtained from semi-empirical PM3 calculations using Spartan ES. In addition to the molecular orbital diagrams, the thermodynamics for the reactions $\text{AlH}_6^{3-} \rightarrow \text{AlH}_4^- + 2\text{H}^-$ and $\text{GaH}_6^{3-} \rightarrow \text{GaH}_4^- + 2\text{H}^-$ will be explored.

41: Dorothy Banas

Faculty Sponsor: David Geiger, Department of Chemistry

An Exploration of the Dihydrogen-Rhodium Bonding Interaction in Carbon Dioxide Hydrogenation Complex Using Semi-Empirical Molecular Orbital Methods

We have performed a theoretical study of a class of pincer rhodium η^2 -dihydrogen complexes. These complexes are very effective at hydrogenating CO_2 . This has possible applications in waste carbon management. The rhodium complex examined is unique because of the

tridentate ligand that is attached in a meridional orientation, in addition to the dihydrogen bond. The nature of the dihydrogen bond to rhodium was investigated as well as the relative energies of various mer tridentate ligands to determine if the identity of the tridentate ligand affects the ability of the complex to hydrogenate CO₂. Thermodynamic cycles using heats of formation obtained via PM3 calculations were employed for comparisons.

42: Dorothy Banas

Faculty Sponsor: Eric Helms, Department of Chemistry

Investigation of an Electrophilic Addition that Contravenes Markovnikov's Rule

The purpose of this research project was to study the electrophilic addition of HCl to atropic acid (2-phenylpropenoic acid). This type of reaction is predicted to follow Markovnikov's Rule, however literature sources suggest that it does not. Our goal was to investigate the possibility that the addition takes place via an alternate mechanism (a 1,4-addition) rather than the Markovnikov mechanism (a 1,2-addition). First, AM1 semi-empirical molecular orbital calculations were employed to determine the relative energies of the highest-occupied molecular orbital (HOMO) of atropic acid and the lowest-unoccupied molecular orbitals (LUMOs) of the two possible carbocation intermediates that could explain the non-Markovnikov addition. The carbocation predicted by Markovnikov's Rule was also modeled. The results suggest that the 1,4-addition leads to a more stable carbocation intermediate than either of the other reaction pathways. Currently, we have synthesized atropic acid from tropic acid and are beginning to study the addition of HCl and DCl to the alkene moiety. The addition of DCl, in particular, will be monitored using NMR spectroscopy to determine the fate of the deuterium atom. It is predicted that the 1,2-addition pathway would lead to 100% incorporation of deuterium into the product whereas the 1,4-addition would result in 50% incorporation.

43: Jamie Miranda

Faculty Sponsor: Eric Helms, Department of Chemistry

Exploration of a Chlorinated Polyacetylene and a Halogenase found in *Anaphalis Margaritacea*

Anaphalis margaritacea is a terrestrial plant that contains several rare, medicinally active chemicals that have been previously studied. However, these chemicals exist primarily in the stem, leaves, and flowers, leaving the chemical components of the roots mostly unexplored. There exists a compound, found in the roots, that contains a chlorinated ring and a tryne tail. Since organochlorine molecules are uncommon in higher plants, the properties of the compound were investigated. The molecule's four distinct isomers were modeled to determine which is lowest in energy and thus predominant in nature. Several characteristics of the compound were assessed to determine whether it has potential to act as a useful drug. Methods of synthesis were planned for production of the compound in a lab. The compound was also isolated directly from *Anaphalis margaritacea* through preparative-scale TLC. It was concluded that the polyacetylene is most likely chlorinated by an FADH₂- or NADH-dependent halogenase. Little research has been done on these enzymes, especially those in plants. Consequently, future research involves isolating genomic DNA from *Anaphalis margaritacea*, probing for the gene that encodes the halogenase, and amplifying the gene through PCR are procedures of interest because they would allow us to further observe characteristics of this halogenase.

44: Adam Voelckers and Basil Sarantis

Faculty Sponsor: David Johnson, Department of Chemistry

Dimerization Studies of 2-methoxy-4-methylphenol

Apocynin, a NADPH oxidase inhibitor, forms a dimer in the presence of hydrogen peroxide and horseradish peroxidase enzyme, which results in decreased transport of LDL across vascular endothelial cells. The attempted dimerization of 2-methoxy-4-methylphenol has been investigated in this study through enzymatic and chemical means. The methoxy dimer has been shown to be a more potent inhibitor of the NADPH enzyme and should also be more reactive to dimerization due to the presence of electron donating substituents as opposed to electron withdrawing in apocynin. In this study we have tried various methods of creating a stable dimer and our results are presented.

45: Michael Miller and Jessica Gucwa

Faculty Sponsor: Wendy Pogozelski, Department of Chemistry

Can the 4977-bp Common Deletion be Induced in Mitochondrial DNA?

Our lab studies the effects of radiation on mitochondrial DNA. In particular, we examine the levels of a specific "common deletion" of 4977 basepairs in the mitochondrial genome 48 and 72 hours after irradiation using Real-time PCR. The cell lines used were derived from the fibroblasts of a patient with Pearson's syndrome and are known to have elevated levels of the common deletion. The results obtained have exhibited a relationship between the amount of radiation and levels of the common deletion in a dose-dependent manner.

46: Arunima Ray and Lauren Wood

Faculty Sponsors: Wendy Pogozelski, Department of Chemistry, and Anthony Macula, Department of Mathematics

Use of the Theory of Group Testing to Annihilate Pairs to Detect Mismatched Pairing in DNA

The ability to quickly identify cross-hybridized DNA duplexes is important the design of DNA libraries for use of microarrays, mutation analysis, DNA computing, and combinatorial group testing. These applications rely on hybridization of perfect Watson-Crick complements to ensure predictable results. We designed a method suitable for detecting cross-hybridizations in pools of up to 36 different non-hybridizing strands using the fluorescent dye SYBR Green I. Test strands of length 16 bp were designed to test a variety of bulges and dangling ends. Some of these test strands formed duplexes that were detected in a pool with 35 other non-hybridizing strands. Testing in pools allows the verification of multiple strands at once, leading to faster confirmation of DNA libraries. We are applying these methods to the classical group testing theory which allows us to test randomly constructed pools and identify the specific mispaired strands.

47: Chelsea Schiano and Colin Waters

Faculty Sponsors: Wendy Pogozelski, Department of Chemistry, and Anthony Macula, Department of Mathematics

Construction of DNA Combinatorial Libraries for Use in DNA Computing

The emerging field of DNA computing draws from biochemistry, mathematics and computer science to create novel ways to solve traditional problems. DNA computing uses combinatorial libraries of DNA strands to store information while relying on molecular and biochemical techniques to manipulate and process these strands to solve problems. In order for DNA computing to be a practical, successful method of computation, these libraries must be able to be constructed in an easy and reliable manner. Construction of the combinatorial libraries in this experiment began with the assembly of an initial library (a “block”) that represented every possible combination of two sequences (a “True” and a “False”) in five positions (variables). Oligonucleotides were primer-extended to create 32 combinations of strands 88-bp in length. Another 3-variable block of 62-bp was similarly created. The presence of the correct strand combinations was verified by PCR and gel visualization. The two blocks were then combined to make a larger library of 128 strand combinations by restriction digesting the blocks and then ligating them. This resulted in successful construction of a library of 134 bp strands as visualized on a gel.

48: Jeffrey Swana, Tonya Gilbert, Paul Kogan, and Leo Chen

Faculty Sponsor: Kazushige Yokoyama, Department of Chemistry

Study of Gold Colloidal Nanoparticles Embedded in a Silica-Based Sol-Gel

Gold colloidal nanoparticles of 20 nm were embedded in a silica based sol-gel matrix and studied spectroscopically. The TEOS (tetraethylorthosilicate) gel precursor was mixed with the gold colloid and sodium tetraborate buffer (pH 9.18) in a volume ratio of 2:1:2. Among all tested buffers, pH 6-12, only sodium tetraborate buffer preserved gold colloidal particles in the sol-gel by demonstrating the same spectroscopic character as that observed by gold colloid in aqueous solutions at neutral pH, with a SPR (Surface Plasmon Resonance) peak at around 530 nm. Through immersion in an acidic (0.1M HCl) solution, a distinct color change, from red to blue, and corresponding spectral shift of the SPR peak to around 600 nm was observed. This suggests that the gel is permeable to acid, allowing direct contact between the acid and gold colloids in the gel cavities, and that the pH inside the cavity can be manually controlled.

49: Dewi Sri Hartati and Winnie Tsang

Faculty Sponsor: Kazushige Yokoyama, Department of Chemistry

An Investigation of Reversible Color Change of Protein Conjugated Metal Colloids

As a promised design of bio-composite device, we have been investigating interaction of the proteins located at an interface surface of liquid nano metals. The main interest of our research is in conformational changes in Amyloid Beta protein (A Beta) and chicken egg albumin on the surface of the gold or silver colloidal nanoparticles. The color of the solution was altered as the pH of the solution was changed from pH 7 to pH 2. This was monitored by the shift in absorption spectroscopy of the surface plasmon resonance (SPR) band of the metal colloids as a function of pH. The band shifts were analyzed by a sigmoidal fits and the points where color change took place were extracted. For both metal colloids, we discovered there was a size-dependence in the band shift. We also investigated if the color change back as the pH was moved back to pH 10. For A Beta protein, only 20 nm gold colloidal nanoparticles exhibited a reversible color change. However, all sizes tested in this study showed the reversible color change when gold colloids were coated with albumin.

50: Allison Morphis

Faculty Sponsor: Andrew Herman, Department of Communication

The Social Construction of Gender and its Influence on Conflict Styles

There are many myths about conflicts and how people interact while in conflict. One myth that popular culture often emphasizes is that males and females utilize different conflict styles because of their genders. This myth has been propagated for centuries because over time beliefs and scripts have shaped people’s social knowledge of how genders interact. This only proves true in several studies, while other research shows that there is little to no difference in conflict styles based on gender. Research has shown how multiple factors such as self-image are more important factors in choice of conflict styles. Gender roles that have been socially constructed and still exist today could have a potentially dangerous effect on heterosexual conflict. Books that focus on these roles such as Men are from Mars, Women are from Venus, support popular myths and hinder effective communication. When gender roles are accentuated in conflict styles a variety of strategies are not used, which could produce more effective solutions. In a world where conflict is prevalent it is important to utilize different styles and strategies that are more effective instead of ones that are considered gender appropriate.

51: John Moore

Faculty Sponsor: Ginni Jurkowski, Department of Communication

Web Accessibility Issues Faced by the Disabled

Journalists who use the web to distribute their information, need to be aware how different audiences use and respond to electronic communication. The sites and the content need to be user friendly and easy to navigate. According to Net Mechanic, Inc. most existing Web sites require only minor modifications to make them accessible to the estimated 750 million people worldwide who have disabilities.

52: Meghan Scheib

Faculty Sponsor: Ginni Jurkowski, Department of Communication

Web Usage Issues Experienced by Senior Citizens

Journalists who use the web to distribute their information, need to be aware how different audiences use and respond to electronic communication. The sites and the content need to be user friendly and easy to navigate. According to the Pew Internet and American Life

Project, roughly one quarter of all Americans age 65 and over use the Internet. As the population continues to age, we need to ensure that the web is accessible to senior citizens.

53: Katelyn Upcraft

Faculty Sponsor: Mary Mohan, Department of Communication

Exploring Communicative Strategies and Tactics to Persuade College Students to Become Actionable Organ and Tissue Donors

This poster will showcase a grant-funded longitudinal investigation conducted over the past four years at Geneseo. The New York Alliance for Donation awarded the Communication Department at Geneseo a HRSA sub-grant in the amount of \$16,000 to be used in Public Relations courses and Directed Studies to conduct research into factors hindering college age students from becoming actionable donors. Through online surveys and focus groups, class teams isolated a variety of factors contributing to misperceptions about the process including cultural values/background to a lack of accurate information. Using this attitudinal research, student teams created public information campaigns targeting specific campus publics. These campaigns were executed and assessed over multiple semesters. This poster presentation will summarize key findings of the investigation from its inception in January 2003 through its culmination this semester.

54: Stephanie Bauer, Erin Bean, Rachel Brower, Kara Burlingame, Nicole Carbutto, Anastasia Emerson, Elizabeth Fear, Megan Gerych, Breana Hill, Andrew Hockenberry, Amy Hunt, Meghan Jutton, Meaghan Kopko, Lisa Kurpiewski, Hillary Littlejohn, Sarah Moore, Katy Papa, Nicole Purpura, Tanya Riesbeck, Corrine Roth, Monica Savedoff, Catherine Sligar, Lauren Spero, Sara Starowicz, Lauren Szpakowski, Beth Van Houten, Kristen White, Elizabeth Zagare, Jaclynn Zampino

Faculty Sponsor: Linda House, Department of Communicative Disorders and Sciences

Individual Student Brochures on Fluency Disorders

Students in CDSC 243 Fall and Spring terms have prepared original brochures for clients, families, educators, and/or medical personnel in the area of fluency disorders.

55: Deanna Abram, Kelly Bergeron, Kim Bonadonna, Erica Curasi, Amy Glover, Meghan Lomb, Suzanne Pokorski, Jenni Rowe, Elizabeth Sauers, Kristin Schaaf

Faculty Sponsor: Linda House, Department of Communicative Disorders and Sciences

Individual Student Brochures on Adult Language Related Disorders

Students in CDSC 541 Fall and Spring terms have prepared original brochures for clients, families, educators, and/or medical personnel in the area of language disorders in adults.

56: Stephanie Bauer, Alexandra Becker, Amy Hunt, Angela Ruggiero, and Laura Waldron

Faculty Sponsors: Linda House and Carolyn MacTurk, Department of Communicative Disorders and Sciences

Materials for Clinical Use

Materials prepared by Communicative Disorders and Sciences students for use in therapy.

57: Christina Swanson, Erin Girardi, Amanda Krigsman and Jacqueline Irwin

Faculty Sponsors: Dale Metz and Douglas Mackenzie, Department of Communicative Disorders and Sciences

Syllable Stress in Speech Produced During Simultaneous Communication by Inexperienced Signers: A Systematic Replication

This study investigated prosodic variables of syllable stress in contextual speech produced during simultaneous communication (SC) by inexperienced signers. Ten normal-hearing inexperienced sign language users were recorded under SC and speech only (SO) conditions. Each participant was required to speak a set of sentences containing stressed versus unstressed versions of the same monosyllabic words. Results indicated longer sentence durations for SC than SO for all speech materials. A 2 X 2 repeated measures analysis of variance indicated vowel duration and fundamental frequency differences between stressed and unstressed syllables were essentially the same in both the SC and SO conditions. These findings are consistent with previous research conducted with experienced signers indicating that temporal alterations produced during SC do not involve violations of other temporal rules of spoken English.

58: Nicole Williams

Faculty Sponsors: Dale Metz and Douglas Mackenzie, Department of Communicative Disorders and Sciences

Effect of Fingerspelling on Temporal Characteristics of Speech in Simultaneous Communication Produced by Inexperienced Signers: A Systematic Replication

This systematic replication examined the effect of fingerspelling on selected temporal characteristics in speech produced by inexperienced sign language users during simultaneous communication (SC) in comparison to speech alone (SA). Stimulus words at four levels of fingerspelling task length were spoken and produced during SC. Consistent with previous research, results indicated significant differences in temporal measures between the SA and SC conditions and among levels of the fingerspelling task length.

59: Justin Hagstrom

Faculty Sponsor: Douglas Baldwin, Department of Computer Science

Architectures for Distributed Visualization

IViPP ("Interactive Visualizations in Particle Physics") is a program that interactively renders the results of a particle physics simulation. Each individual particle can be rendered very quickly, however drawing millions of particles per frame slows down the rendering time to the point where it is no longer interactive. In order to solve this problem, I investigated whether it is possible to use a cluster computing system to speed up the rendering process. I implemented two distinct architectures for distributing the workload, sort-first and sort-last. Sort-last divides the data set (the particles) evenly between the computers in the cluster. Each computer renders its subset of the data, and then sends the rendered image back to the master computer. With sort-first, the viewing volume (the visible screen space) is divided into tiles, and each computer is responsible for rendering only one of the tiles. Despite the overhead from communication between computers, the speedup results collected from timing the algorithms show that a distributed architecture for visualization programs can greatly decrease the time it takes for rendering. When measuring rendering time only, sort-last's speedups were almost perfectly linear.

60: Heather Warren

Faculty Sponsor: Douglas Baldwin, Department of Computer Science

Optimizing Constructive Solid Geometry

The IViPP (Interactive Visualizations in Particle Physics) program renders data produced by particle physics modeling programs. The visualized data frequently involves geometric information represented by constructive solid geometry (CSG). Internally, CSG models are represented as trees. Since the geometries need to be drawn at fast, interactive rates, they must be optimized by minimizing the number of geometric primitives and operators used in the CSG models. Typically, particle physics modeling programs use mathematically elegant but computationally suboptimal primitives to represent data. CSG trees are built bottom up; nodes that represent operators join subtrees that represent the operands to those operators. The code to create these operator nodes was extended to test for optimizable relationships between subtrees by comparing the objects represented by the subtrees. The crucial optimizable relationships, tested for with bounding boxes, include cases when objects are disjoint, partially overlap, or completely overlap. Finally, all primitives were given clipping methods that help determine the intersection of objects that are partially overlapping. This new strategy of optimization improved the runtime of the overall program and allowed some geometries to be visualized that previously could not be handled by IViPP due to space and time limitations.

61: Garrett Jones

Faculty Sponsors: Homma Farian, Department of Computer Science, and Gregg Hartvigsen, Department of Biology

Simulating the Spread of Influenza throughout Multiple Small World Networks

The spread of influenza in a community of people, called a small world network, is simulated. An algorithm has been implemented, allowing multiple small world networks to communicate with each other, which enables the disease to travel from one community to another. Each city is simulated on an individual node on a cluster, running concurrently and synchronously with its peer cities. Parameters such as the number of cities, city population, and number of edges connecting each city are examined juxtaposition to the dynamics of the disease. A visualization of the epidemic spreading between multiple cities has also been achieved.

62: Garrett Jones

Faculty Sponsor: Homma Farian, Department of Computer Science

A Procedural Approach to Game Design

The development of current generation video games is continuously met with higher expectations from gamers in areas such as computer graphics, audio, and artificial intelligence. The challenge is producing a game that delivers on these aforementioned categories, without requiring the large amount of manpower often found in development teams today. Algorithms and data structures developed for creating game content procedurally, as opposed to creating game assets by hand, will be discussed.

63: Philip Stachowski, Garrett Jones, and Pressly Dowler

Faculty Sponsors: Homma Farian, Department of Computer Science, and Matthew Haas, Department of Computer & Information Science, Corning Community College

Realms of Collaboration: A Growing Tale of High-Performance Computing and the Cooperation between Two Schools that Play With It

For as long as technology has been pursued, it has had an effect of making the world smaller, or allowing people to better communicate and share resources. With the advent of the internet, the rate at which we accomplish this has only accelerated, and today we are finding new breakthroughs in the area of High-Performance Computing (HPC). Individuals from SUNY Geneseo's Distributed Systems Lab (DSLAB) and Corning Community College's Location for Abstract and Innovative Resources (LAIR) have begun scheming ways of experimenting with combined access to resources and furthering our exploration of HPC. We have begun the process of machine transparency through the use of Xen, a virtual machine monitor that gives us the ability to run multiple machines on the same physical computer, or migrate them to other physical machines as desired. In order to link together, we made use of Virtual Private Networks, which allows us to communicate with machines on both physically distant networks as if they were logically on the same private subnet. Issues of communication bandwidth, resource availability, and authenticated access to services have presented interesting learning possibilities for everyone involved. As we continue with our collaborations, we are looking to further strengthen the viability of cluster computing and accessibility of services, experimenting with new and exciting technologies to improve the capabilities of everyone involved.

64: Philip Stachowski, Garrett Jones, and Pressly Dowler

Faculty Sponsors: Homma Farian, Department of Computer Science, and Matthew Haas, Department of Computer & Information Science, Corning Community College

In Search of Practicality: Using High-Performance Computing to Understand Password Security and Cluster Operation

With significant focus on algorithms, hardware, and applications, High-Performance Computing (HPC) can emit a very exclusive aura. For such innovations to be beneficial to others, public awareness must be established and a culture nurtured to better expose HPC and its capabilities for use by broader audiences. Often times good practical examples that can be seen as interesting yet appropriately involve HPC can be a good way of showing off benefits of cluster computing while allowing others to understand it through terms in which they may be more familiar. A project that started out of random interest involved the cracking of encrypted UNIX passwords with the help of John the Ripper. Instantly a desire was created to implement the cluster mode operation of the program. The ultimate goal is to perform several timings across different numbers of nodes working against identical password hashes to determine efficiency in processing, while also using the application to diagnose cluster networking and I/O throughput, addressing bottlenecks as appropriate. With a growing cooperation between SUNY Geneseo's DSLAB and Corning Community College's LAIR, we are looking to extend our experiments to utilize a logical cluster created from machines in both labs. Additionally, as a form of public outreach, providing some visibility to general computer users and educating them against weak passwords would be an excellent way of promoting more active changes in people's security perceptions.

65: Bonnie Arena

Faculty Sponsor: Sherry Schwartz, School of Education

Riding the Rail: The Orphan Train Riders 1854-1930

My entry is a Social Studies Unit for elementary students. It is about the placement of orphaned, homeless, and abandoned children, commonly referred to as the Orphan Train Movement, which took place from 1854 until 1930. This little-known era in American History is one of our country's best kept secrets. The movement spread to 47 states and Canada. Most of the children thought that the group that they went with was the only group to be sent out of the city, but this was not the case. It has been estimated that 150,000 to 200,000 children rode the Orphan Trains over the course of 75 years. What better way to teach our children about their past than through the eyes of the children who rode the rails? The students will learn relevant National Council of Social Studies themes such as: American History, geography, economics, civics, citizenship, government and so much more, all while learning about children their own age. A unit concerning the Orphan Train Movement will enhance literacy, critical thinking, internet skills and creativity. I have submitted my unit to Social Studies for the Young Learner for publication.

66: Katherine Arroya, Margot Bangs, and Dan Koch

Faculty Sponsor: Linda Steet, School of Education

Child to Tween: American Girls in Grades 4, 5, & 6

For our Social Foundations of Education class we were assigned the task of examining gender issues that girls face in grades 4, 5, and 6. In order to accomplish this we had to take on the roles of cultural anthropologists and attempt to disregard the preconceptions we have formed in our own lives. On one side of our display we covered popular culture issues ranging from media usage to social life. The other side focused mainly on specific aspects of education, including its history and characteristics in regards to girlhood. Learning about these issues provided us with a better understanding of this age group which will help us in our role as future educators.

67: Carissa Canovas, Danielle Gioe, and Stephanie Hall

Faculty Sponsor: Linda Steet, School of Education

Girls' Education in America: Grades 1-3

One side of our poster includes the popular culture of girls from grades 1-3. This includes topics such as popular movies, television shows, books, magazines, sports, toys, and clothing that we thought most girls from this age range would be most interested in. Not only will we provide facts and statistics, but we will also visually show everyone by using graphs, tables, and pictures. On the other side of the poster, we included the academic curriculum that we thought would benefit girls from grades 1-3 in the classroom. This includes the classroom environment, different types of methods used to teach, and any subjects that we think would be beneficial to girls of this age range.

68: Jessica Jamotta and Krista Wetmore

Faculty Sponsor: Linda Steet, School of Education

Daddy's Little Girl Thinks It's Time For A Change In Education: A Glimpse at Gender Equality in Education for Girls in Grades 1-3

Our poster presentation will look at the history of gender in education in grades 1 through 3, focusing on girls in the classroom. The poster will explore gender issues in teaching and learning. Characteristics of a gender sensitive educational environment will be displayed as well. In addition, the poster will present pop culture in the United States for girls grades 1 through 3. The goal of gender equality is to create a girl friendly atmosphere in the education environment. Within the poster, we try to capture the essence of gender equality in early elementary education.

69: William Jones III and Jordyn Rudmann

Faculty Sponsor: Linda Steet, School of Education

Young Women: Grades Four through Six

This poster will be an abstract portrait of “typical” young women who are in fourth through sixth grade. It will discuss such topics as education, popular culture, social life, economic status, and sports. The poster will also display an ideal school model for young women. The educational aspect will examine typical curriculum, subjects, student discipline, and classroom structure. Popular culture will deal with subjects such as clothing, fashion, makeup, toys, computer habits, magazines, movies, television, food, dieting, and eating disorders. The social life section of the poster will give details about typical after school activities, dating, sexual activity, and drug use. Economic status will be given in the form of a graph portraying family income demographics and food insecurity. The sports section will show the typical participation in school sports and extracurricular activities, and female role models for these young women. The ideal school model will be based on real life observation and research of present day middle schools, in order to find a structure that best suits young females. It will look at topics such as curriculum, extracurricular activities, dress code, discipline, sports and sex education.

70: Elizabeth Kuchman and Emily O’Leary

Faculty Sponsor: Linda Steet, School of Education

Is Girlhood Equal in U.S. Pop Culture and Education Curriculum

Our poster presents the history of gender and education. We present gender issues in teaching and learning. To help understand gender equity we describe girlhood in U.S. popular culture. We describe such topics as movies, games, music, t.v., toys, electronics, books, clothes, sports, extracurricular activities, and educational toys. We also look at the curriculum for classrooms in the first grade. The curriculum we discuss includes math, music, english, science, and social studies. Using our knowledge we look at gender equity in the classrooms.

71: Dianna Nelson and Megan Schwenzer

Faculty Sponsor: Linda Steet, School of Education

A Glimpse of Girlhood in America: The Education and Culture of Young Girls Grades 1-3

The purpose of this poster is to outline the popular culture and education of young girls. The poster targets girls in America in the early grades of elementary school (grades 1-3). One side of the poster will focus on the popular culture aspect of these young girls, including things like, their physical appearance, the most popular books/movies for their age group, and health issues relating to their age group. The other side of the poster will focus on how teachers can most effectively teach these young girls. This side will include suggestions on classroom setup, various ideas for teaching methods, and ways to direct curriculum to young girls. The poster will be colorful and include pictures to help better grasp the true culture of these young girls. More importantly, it will include research drawn from a number of reliable sources.

72: Holly Ogden and Alexandra Rich

Faculty Sponsor: Linda Steet, School of Education

Perceiving and Promoting Powerful Princesses: Popular Culture and Educational Methods for Girls Grades 1-3

Our poster will present information about girlhood in U.S. popular culture and the characteristics of a gender-sensitive educational environment. One side of the poster will display the interests and lifestyle characteristics of girls ages six to ten. The other side will show teaching methods and curriculum content that can be geared toward supporting young girls in American schools.

73: Lisa Runions and Deanna Long

Faculty Sponsor: Linda Steet, School of Education

Our Girls' Education

For many past decades, the existence of the gender-bias has allowed the girls in the classroom to be overlooked due to the belief that they belonged in the kitchen rather than behind a desk. An over-emphasis of the superiority of boys has allowed for strong female figures, such as Susan B. Anthony, to work towards gaining the rights for women. Our presentation focuses on the education of young girls in modern classrooms, covering all aspects of popular culture. Areas of music, literature, technology, television, and personal appearance have been researched to help us to formulate a classroom with an increased attention to girls. From our findings, we can have a better idea of how to prepare our classroom with toys, lessons, and activities to better instruct the girls. Our ideal school allows both girls and boys to be educated in an atmosphere of equality in learning.

74: Corie Sprentall and Jenna Curry

Faculty Sponsor: Linda Steet, School of Education

Girlhood in America: The Culture and Educational Experience

Our poster will illustrate issues surrounding gender equity in grades one through three. It will focus primarily on the culture and the ideal educational experience of young girls in this age group within the United States. The cultural aspect includes observations on appearance, popular music, toys, books, and outside school activities. In general, this section deals with girlhood in American culture. The other aspect of the poster will focus on schooling including the curriculum and classroom environment, as well as on scheduling a classroom so that it will be most conducive to the education and development of young girls. Overall, this side of the poster will demonstrate how to create the most gender sensitive educational environment. In total, the research poster is designed to suggest ways to improve the educational experience within grades one through three.

75: Christine Biermann

Faculty Sponsor: Jim Kernan, Department of Geography

Analyzing Spatial Heterogeneity of Insect Populations: A Case Study in Ohio's Oak Openings Region

The Oak Openings Region is a patchy landscape of oak savanna, tallgrass prairie, and deciduous forest. I investigated insect populations in the University of Toledo's Stranahan Arboretum, located at the northeastern periphery of the region. The expectation was that sample plots in the western portion of the arboretum, which was similar to a natural oak opening, would have higher soil temperatures and insect populations than sample plots in the more humanized eastern portion of the arboretum. Soil temperature was measured four times daily at 36 sample plots. Ground cover class was recorded and pitfall traps were used to sample insect populations. A significant positive correlation was found between soil temperature and number of insects caught per day. Ground cover was also correlated with both soil temperature and number of insects. A geographic information system (GIS) was created to interpolate and represent spatial patterns in soils and insect densities. Results indicate that the western portion of the site has a microclimate that supports higher populations of Coleoptera (beetles) and Formicidae (ants) than the eastern portion.

76: Christopher Marro

Faculty Sponsor: Jennifer Rogalsky, Department of Geography

A Geographic Analysis of Belle Isle Park Detroit, MI

The human fascination and need for nature is a universal one that spans many cultures across the globe. Because of this strong longing for nature it is no surprise that humans have found a way to capture bits of the natural world in an attempt to bring it closer to home. They do so in the form of a park. It is also no surprise that urbanites, those who are most deprived of nature and the serenity it has to offer, have created some of the most breathtaking and intricate parks of our time. Belle Isle, the principal recreation spot in the City of Detroit is one such park. Created in the late 1800's during a nationwide movement to beautify American cities, it has evolved into a central recreational location for the people of Detroit and the surrounding metro area. An examination of the island park's unique geographic characteristics may help us to better understand how it has evolved into such a recreational center.

77: Whitney Snyder

Faculty Sponsor: Jennifer Rogalsky, Department of Geography

Racial Spaces: Residential Segregation & Inequality in the Detroit Metropolitan Region

An examination of racial segregation on Detroit's visible landscape, and a brief discussion of the cultural mechanisms which protract this phenomenon.

78: Hannah Hanford and Patrick Donohue

Faculty Sponsor: Dori Farthing, Department of Geological Sciences

A Study of Zeolites in Sheeted Dikes from Akaki Canyon, Cyprus: Implications for Origin and Alteration

A petrologic and geochemical analysis was performed on zeolites found in sheeted dikes from the Klirou Bridge outcrop in Akaki Canyon, Cyprus. The sheeted dikes are part of the Troodos Ophiolite, which represents a well-preserved section of the ocean floor. The zeolites represent minerals that have grown within open spaces and may be closely related to groundwater infiltration. The mineralogical nature of the zeolites was determined using an X-Ray Diffractometer (XRD) and X-Ray Fluorescence Spectrometer (XRF). Results were also determined through an examination of the minerals in both thin section and under a scanning electron microscope. Full Analysis discerns the primary or secondary nature of the zeolites. The significance of zeolites is far reaching, as they are widely used in commercial, household, petrochemical and nuclear industries, and agricultural disciplines.

79: Hannah Hanford

Faculty Sponsor: Weston Dripps, Department of Earth and Environmental Sciences, Furman University

A Comparative Analysis of Stream Temperatures among Rural, Residential, and Commercial Watersheds within the Piedmont Region, Greenville, South Carolina

Stream water temperature governs many in-stream physical and chemical processes that affect overall water quality and stream ecosystem health. In this study a multi-stream comparative survey was conducted among rural, residential, and commercial-type streams in Greenville, South Carolina in an effort to assess the impact of land use differences on in-stream water temperature. Aerial photographs, in conjunction with field site assessments, were used to select the sites. At each location, stream temperature was measured from June – December 2006 using water temperature data loggers. All sites show a distinctive diurnal cycle in water temperature that reflects the daily variability of incoming solar radiation. Peaks and troughs in daily water temperature among the sites were temporally coincident, but the rural sites were distinctly colder than the residential and commercial sites. These temperature differences reflect differences in the extent of riparian cover, which acts to shade the stream, and the amount of impervious surface, which influences the partitioning of stream water between ground water influx and surface runoff. The rural sites have more extensive riparian cover and less impervious surface which translates to cooler stream water temperatures. Assessing the ecological effect of these temperature differences is an area for future study.

80: Serena Matt and Shannon Rabideau

Faculty Sponsor: Dori Farthing, Department of Geological Sciences

Identifying the Mysterious Green Rock in Aphrodite's Mélange

Along the southern coast of Cyprus, between Paphos and Limassol, at Petra tou Romiou samples were taken of a green rock of unknown composition. The sample was found in a gully adjacent to rock units including pillow basalts, limestone boulders, and dykes that suggest this area is apart of a mélange, which is agreeable to the geologic history of southern Cyprus. The green sample was examined with using

an XRD to identify the mineralogical composition and to compare this sample to known samples of eclogite, the presumed origin of the green sample. Eclogite is a rock of mafic composition that has undergone high levels of metamorphism and often contains Mg-rich garnets, Na-rich clinopyroxene, kyanite, quartz, and spinel. After sampling the composition the green sample has been seen to be representative of an eclogite from a mélange region.

81: Irene Rizza and Kelly Howe

Faculty Sponsor: Dori Farthing, Department of Geological Sciences

Hydrothermal Veins of a Picritic Hill in Margi, Cyprus

Hydrothermal veins, varying in color from pink to green to white, were collected from a picritic hill in Margi, Cyprus for mineralogical analysis. Samples were analyzed with an x-ray diffractor (XRD). The primary mineral in all the veins was calcite, although the XRD did detect serpentine in the green samples. Further analyses were done with an analytical scanning electron microscope (SEM) to determine slight chemical composition variances. Analyses of the samples from Margi agree with published literature on calcite veins and vugs from intrusive rocks and provide information on the composition and geologic history of the picritic host rock.

82: Kathleen Sharman and Jenna Hojnowski

Faculty Sponsor: Dori Farthing, Department of Geological Sciences

Chemical Analysis of the Fteracoudi, Cyprus Outcrop

Eight fist-sized samples of basalt from the sheeted dike region of Fteracoudi, Cyprus were collected. Samples originated from a single 200 ft. long outcrop. Sheeted dikes form on the ocean floor as magma rises from the mantle. Therefore, an outcrop of sheeted dikes in an ophiolite can provide the chemical heterogeneity of the mantle. Thin sections of the samples were prepared and studied using a petrographic microscope. Samples were also analyzed for major and minor element composition using X-ray Fluorescence (XRF). The data reflect the chemical heterogeneity of the mantle, since each unit formed by the same process.

83: Nicholas Toole and Jeff Patterson

Faculty Sponsor: Dori Farthing, Department of Geological Sciences

Mineralogy of Umbers from Upper and Lower Margi Outcrop, Cyprus

Two different amber samples were collected from an amber deposit at Margi, Cyprus. One sample was taken from the bottom of the deposit and the other was taken from the top of the deposit. Umbers are rocks that form on the seafloor and contain metal rich hydrothermal precipitates. The purpose of the study was to determine the mineralogy for the different samples and compare them. The two samples powdered and x-ray diffraction (XRD) was used to determine the mineralogy of the samples from the lower part of the deposit and upper part of the deposit. XRD analysis showed differences between the two different samples. XRD analysis showed that the lower sample was rich in goethite, $\text{Fe}^{3+}\text{O}(\text{OH})$. XRD analysis showed that the upper sample was also rich in goethite. XRD analysis also showed the possibility of the upper sample containing gehlenite, $\text{Ca}_2\text{Al}_2\text{SiO}_4$, although other possibilities for the difference include sheeted clays within the sample while it was being processed. Since, goethite was found to be predominant within the deposit this area may be economically significant if used for mining for iron.

84: Henry Adams and Baird King

Faculty Sponsor: Scott Giorgis, Department of Geological Sciences

Variation of Deformation within a Fault Zone; Cyprus

The Arakapas Fault zone in Southern Cyprus represents a large transform fault zone causing significant deformation ~91.5 Million years ago (Ma). This deformation can be studied on an outcrop level by examining smaller scale faulting. When a fault forms, the deformation within the adjacent rock is initially uniform throughout a given zone. As time passes, the intensity of the deformation begins to vary within the zone with the most intense deformation concentrated on the fault. The degree of localization may vary due to composition and ductility of the parent rock. A gradation in deformation was observed along a thrust fault formed in a brittle gabbro/diabase within the Arakapas Fault zone just west of Pano Lefkara. Four pictures were taken of the fault zone to document this strain gradient. The area within each photo decreased closer to the fault in order to account for increasing fracture density. Fracture density and grain size measurements indicate that these two factors vary systematically with respect to distance from the fault. There is a clear transition of large fracture density and small grain size close to the fault to a smaller fracture density with larger grain sizes further away from the fault.

85: Neil Seabury and Nick Inzinna

Faculty Sponsor: Scott Giorgis, Department of Geological Sciences

A Paleomagnetic Study of a Sheeted Dike, Cyprus: A Counterclockwise Rotation of the Troodos Ophiolite

Paleomagnetic studies investigate magnetic field orientations preserved within rocks. This is done by analyzing the orientation of magnetic north at the time of formation and used in comparison to the present day magnetic north. Through these studies it is possible to determine the amount of rotation between the time of formation and the present. These types of studies require a rock to contain magnetic minerals. An ophiolite sequence is upper mantle and oceanic rock emplaced onto continental rock. Rocks within ophiolites are typically rich in iron and therefore have a strong magnetic signature. Previous paleomagnetic studies (Allerton and Vine, 1987) have shown that the Troodos ophiolite in Cyprus has rotated counterclockwise after its emplacement. Possible interaction with the Arakapas fault zone in Cyprus may have caused some blocks to experience additional rotation. To determine whether or not the sheeted dike sampled had rotated, paleomagnetic analysis of six samples were conducted. These tests have shown that the sheeted dike rotated 90 degrees counterclockwise. This coincides with and supports Allerton and Vine's (1987) estimates of the total amount of rotation of the Troodos ophiolite during emplacement, meaning that the sheeted dike sampled did not interact with the Arakapas fault zone.

86: Daniel Roach

Faculty Sponsor: Scott Giorgis, Department of Geological Sciences

Flow Direction within Sheeted Dikes of Akaki Canyon on Cyprus

The Troodos Ophiolite Complex, a slice of oceanic crust, is exposed in the Troodos Mountains of Cyprus in the eastern Mediterranean Sea. The sheeted dike sequence of the Troodos Ophiolite is composed of sub-vertical diabase intrusions of varying size and width. Sheeted Dikes formed as a result of intruding magma cutting across in-place country rock at an ancient spreading center. Sheeted dikes are stratigraphically emplaced between underlying gabbros and are overlain by pillow basalts deposited on an ancient ocean floor. Flow direction in sheeted dikes of the Troodos Ophiolite can be determined by the orientation of vugs or enclosed cavities with the rock in relationship to the chilled margins of a dike. The stratigraphic relationship of the sheeted dikes with surrounding pillow basalts, in addition to vesical shapes found within the diabase indicate flow upwards. Visual inspection of volumetric flow indicators however indicates flow downwards. Geopedial structures were sampled and photo-documented in order to resolve this apparent discrepancy in flow direction of the intruding magma.

87: Clayton Mansfield

Faculty Sponsor: Scott Giorgis, Department of Geological Sciences

Neotectonic Block Rotation Adjacent to the Western Idaho Shear Zone, Idaho

The western Idaho shear zone (WISZ) near McCall, Idaho, is a late Cretaceous strike-slip fault currently undergoing extension. Fault blocks within the shear zone show no evidence for vertical axis rotation. Previous analysis suggested a block west of the shear zone has rotated counter-clockwise, which suggests an abrupt change in the modern plate motion across the WISZ. This change may be attributed to the reactivation of the WISZ. Paleomagnetic data from an additional fault block, the Hazard Creek fault block, located to the north of Fish Lake might better constrain the kinematics of extension in this area. Samples were collected from three flows of the Columbia River Basalt Group to investigate vertical axis rotation using paleomagnetism. Our hypothesis is that the Hazard Creek fault block will have rotated counter-clockwise if modern plate motions change across the shear zone. Preliminary data indicate two components of magnetism in the basalt. One is weak, probably a secondary weathering component, and the other is strong and interpreted as being primary. The primary component is south-trending, suggesting that the basalt flows were deposited during a reverse polarity interval and suggests there is no change in the orientation of plate motion across the WISZ.

88: Robert Sirianni and Clayton Mansfield

Faculty Sponsor: Scott Giorgis, Department of Geological Sciences

Slickenlines: Evidence of Ancient Stress Fields on Cyprus

Cyprus is an island in the eastern Mediterranean capped with an ophiolite, a slice of oceanic crust. It has experienced multiple episodes of deformation, such as contraction during ophiolite emplacement and extension in the form of normal faulting. Stress fields consist of three principal compressive stresses: σ_1 , σ_2 , and σ_3 , which are the maximum, intermediate and minimum compressive stresses respectively. A paleostress study attempts to determine the orientation of past stress fields associated with ancient tectonic events. The orientation of these stresses can be determined using slickenline measurements taken in the field. Slickenlines are grooves that have been scraped into a rock along a fault plane, forming parallel to the movement of the fault blocks. Twenty-seven slickenline orientations were taken from Cyprus. Assuming Mohr-Coulomb failure, the three principal compressive stresses were determined for each. These paleostress fields were plotted and analyzed for common orientations, which could indicate synchronous deformational events. Based on the data presented, extensional faulting appears to account for many of the field measurements on Cyprus. One subset in particular may be associated with modern extension in the Polis graben. More data is needed to adequately explain the remainder of the field data.

89: Robert Sirianni

Faculty Sponsor: Scott Giorgis, Department of Geological Sciences

Incorporating Denudation Rates into Uplift along the Central Range Fault System, Trinidad

Trinidad, an island located off the northern coast of Venezuela, is a center for oil and gas companies, especially in the Central Range fault system. Recent research into this area has found that there is a young, actively converging boundary between the Caribbean and South American plates. The boundary undergoes transpression, which is a strike-slip deformation that deviates from purely transcurrent plate motion because the relative plate motion vectors are not parallel to the plate boundary itself. The transpressional system was simplified into a two dimensional numerical model of the convergent component of deformation and the subsequent isostatic response. This model predicts both the depth of crustal root development and the amount of uplift along the boundary. The model did not account for erosion and therefore produced unreasonably high elevations when applied to the Central Range fault system in Trinidad. Application of erosion rates to the previously developed transpressional model allows for estimation of exhumation rates along the Central Range. The value of this model is that it converts uplift rates into exhumation rates, a value that can be tested using methods such as apatite fission track dating and also gives more reasonable elevations for the Central Range.

90: Jean Danaher, Matthew Grossman, Aaron Leahman, Andrea Leggett, and Matthew Travis

Faculty Sponsor: D. Jeffrey Over, Department of Geological Sciences

Montauk Point Lighthouse: Less Tauk, More Wauk

Over the last 200 years the coastal bluffs near the Montauk Point Lighthouse at Montauk, New York on the eastern tip of Long Island have undergone severe erosion. The Montauk Point Lighthouse was built in 1792 over 100 m (300 feet) from the bluff edge; it now stands less than 20 m (60 feet) from the edge of the Atlantic Ocean. Air photos and maps from 1956, 1994, and 2006 indicate shore line recession at a rate of 0.3 m (1 foot) per year. This rate of erosion has persisted in spite of several conservation measures taken to reduce shore loss: stabilizing the cliff using a filter box terracing system, building a toe wall at the base of the cliff, and a sea wall at the edge of the water. If erosion continues at the current rate the lighthouse will be destroyed in the next 60 years. Due to structural instability of the cliff it is likely

the lighthouse will collapse even sooner. There is no question that without further conservation efforts the Montauk Point Lighthouse will collapse in the near future.

91: Amanda Wood and Nickolas Patch

Faculty Sponsor: D. Jeffrey Over, Department of Geological Sciences

Planktic Microfossils and Depositional Environment from the Dhiarizos Group of the Mamonia Complex in Cyprus

Marine microfossils were recovered from four samples of chert and carbonates interbedded within red shale near Agios Ilias in the Vhiarizos River Valley of southwest Cyprus. The rocks are known to be part of a melange found in the Vhiarizos Group of the Mamonia Complex, a mixture in igneous and marine strata abducted onto Cyprus in the Early Cretaceous. Microfossils extracted from the cross-bedded siliceous strata include microgastropods, foraminisera, sponge spicules, and radiolarians. The depositional environment with a deep ocean basin near tropical latitudes subject to bottom currents. The planktic foraminisera and radiolarians together denote deposition at or above the carbonate-compensation depth and suggest the strata are Jurassic to Early Cretaceous, approximately 228-99.6 million years ago.

92: Justin Marsh and Chris Jolliff

Faculty Sponsor: Richard Young, Department of Geological Sciences

Meteorites and Their Resulting Impacts

Meteorites are stony or metallic masses of matter that have fallen to the earth's surface from space. The asteroid belt, between Mars and Jupiter, contains objects that are believed to be differentiated material from a pre-existing planet. There are several types: chondrites, achondrites, and carbonaceous chondrites which are silicates and represent 92.8% of all meteorites; and nickel-iron meteorites which represent 5.7%. Some rare types are mixtures of silicates and iron. Meteorites observed to enter Earth's atmosphere are "falls," whereas "finds" refers to all meteorites which are found, but not observed to fall. The iron types are believed to be the remains of the planetary core. Many meteors find their way to Earth, from the asteroid belt, but also from secondary impacts on terrestrial planets such as Mars and the moon. The magnitude of an impact is determined by a number of factors: the relative velocities of the meteor and the earth; the angle at which the meteor hits; and what substrate the meteor impacts. Generally, large meteorites plunge into surface rocks at speeds of 30-80 km/s, compressing the underlying rocks and converting initial kinetic energy into heat and kinetic energy of the ejecta. The high pressure can produce a series of unusual mineralogical phases that permit verification of the impact origin of a crater. The duration of this compressional state is short, lasting approximately as long as it takes the meteorite to travel a distance equal to its own diameter. The number of potential earth crossing objects (ECO's) is currently more than seven times greater than it was when more extensive surveying began about 20 years ago.

93: Lauren Akin and Hannah Prescott-Eberle

Faculty Sponsor: Andrzej Kedzierawski, Department of Mathematics

Constructing a Map from a Table of Distances

We consider some problems that require the best approximation of a set of data points in the plane from the knowledge of the distances between them. We solve these problems in two ways, by using the least squares method and by using the spectral decomposition of a matrix. Applications of both methods will be illustrated by examples using Matlab programs.

94: Michael Blanding

Faculty Sponsor: Andrzej Kedzierawski, Department of Mathematics

Two-Dimensional Thermal Tomography

We consider the following inverse problem for the heat equations: From the knowledge of the initial temperature of an object on the surface at one end of an object and the temperature at time t at the other end we will calculate the unknown thermal diffusion coefficient. The knowledge of diffusion coefficients allows us to identify internal inconsistencies of the physical properties of the material. We solve this problem numerically and mathematically with high accuracy. Our solution could be the theoretical basis for Thermal Tomography. Our theoretical solution may have many practical applications. For instance, from measurements of temperature of both sides of a heated wing of an airplane, we can predict possible internal cracks in the wing.

95: Thomas Ehmman

Faculty Sponsor: Andrzej Kedzierawski, Department of Mathematics

Solution for the Inverse Problem related to the Heat Equation

Inversion of heat propagation is an important phenomenon in physical sciences and applied mathematics. The inverse problem of determining an unknown initial temperature of an object from the knowledge the object's temperature at time t is explored mathematically and solved numerically. We present programs written in MATLAB that accurately predict the initial temperature of the object assuming the knowledge of the temperature of the object at time t .

96: Raymond Garzia

Faculty Sponsor: Andrzej Kedzierawski, Department of Mathematics

Predicting the Outcomes and Expected Length of Sports Matches

We use Markov Chains and Stochastic Matrices to predict outcomes and expected duration of sports matches in several sports. For instance, given the probability of a tennis player winning a rally, we predict the length and outcome of the game. This solution assumes that the probability is constant or alternatively that probability is varying and is dependant on prior performance. Additionally we also consider events with many players, such as chess and basketball tournaments. For example, we solve the inverse problem of calculating unknown

probabilities of success of basketball teams for the current season based on the results of previous matches of all teams and then try to predict the final distribution of teams. We will illustrate our procedure with several Maple and MATLAB programs.

97: Colin Hart

Faculty Sponsor: Andrzej Kedzierawski, Department of Mathematics

Applications of Stochastic Processes

We use stochastic processes and Kolmogorov Partial Differential Equations to predict the outcome of an investment. In our model a variable interest rate depends on trend and random fluctuations. Our solution may have practical applications related to banking, investing and gambling.

98: Cindy Kim and Scott Palmiter

Faculty Sponsor: Andrzej Kedzierawski, Department of Mathematics

Geometric Tomography

The support function of a given convex set in the direction of a unit vector u is the value of the largest possible orthogonal projections of a point from the set onto the line which has direction u . We examine several properties of the support function. In particular, we solve the inverse problem of determining the unknown set from the knowledge of its support function. We illustrate applications of our methods by several examples using Matlab programs

99: Daniel Mackey

Faculty Sponsor: Andrzej Kedzierawski, Department of Mathematics

Numerical Solution of Fredholm Integral Equations

We present theoretical and numerical solutions of Fredholm Integral Equations of the first and second kind. We illustrate applications of our numerical methods by examples using Matlab programs.

100: Eamon O'Dea

Faculty Sponsors: Chris Leary and Gary Towsley, Department of Mathematics

Analysis of a Social Contact Matrix in a Respiratory-Spread Infectious Disease Model

A promising new approach in the modeling of respiratory-spread disease epidemics is the use of social-contact data to determine transmission rates between different age groups. Collecting accurate social-contact data is challenging, though. To determine how much error in different transmission rates would affect the performance of a social-mixing model, sensitivity analysis of a contact matrix was done.

101: Rachel VanCott and Ellen Schmidt

Faculty Sponsor: Chris Leary, Department of Mathematics

Epidemic Dynamics at University: How Network Structure Influences Disease Spread

The student populations of academic institutions are often arranged in insular, densely interconnected social networks. This structure potentially allows disease, such as influenza, to spread rapidly through the population. As the threat of avian influenza has received increasing amounts of attention from the media and scientific community, social network models will play an increasingly important role in investigating the dynamics of epidemics. We analyze the structure of the student body at the State University of New York College at Geneseo and use a simulation model to study the spread of influenza and the mitigating effects of vaccination in this network. In general, the dense structure of this network results in large epidemics. These results are being incorporated into the college's pandemic influenza preparedness plan.

102: Sean MacMullin and Jacquie Strain

Faculty Sponsor: Kurt Fletcher, Department of Physics & Astronomy

Preparation of Deuterated Polymer Targets for the OMEGA Magnetic Recoil Spectrometer

We have developed methods for preparing uniform deuterated polymer films on tantalum substrates. The films will be used as targets for Magnetic Recoil Spectrometer (MRS) experiments at the OMEGA laser system located at the University of Rochester's Laboratory for Laser Energetics. The MRS is being built to measure the neutron spectrum produced in inertial confinement fusion (ICF) implosions at OMEGA. The goal of our project is to produce circular films with areas ranging from 2-15 square centimeters and thicknesses ranging from 40-300 microns. Ultimately, the polymer thicknesses will be characterized to within 5%, with less than 5% variation throughout the sample. Methods for fabricating these films and techniques for determining the thickness and surface roughness will be discussed.

103: Eli Hibit and Chris Murphy

Faculty Sponsor: James McLean, Department of Physics & Astronomy

Simulation and Optimization of MagmaCore Armor under Impact from Bullets

The company Armor Dynamics was recently created for the development and manufacture of a new type of shielding against high speed projectiles, named MagmaCore. To find ways to optimize the design, this armor is being analyzed using a computer simulation to determine its behavior under impact from bullets. Simulations are run using the finite element program, LS-DYNA, which can run on a single computer or, for greater speed, on a computer cluster at SUNY Geneseo's Distributed Systems Laboratory. The first step to modeling the armor is to parameterize the hexagonal lattice core. Models were developed via Fourier analysis of points from various cross sections, and through three dimensional imaging. The core holds small ceramic balls, which will be added to the model by a dynamic simulation of dropping them into the core model. Maximizing the speed at which the simulations are completed requires the optimization

of the distribution of the model's parts amongst the nodes of the cluster. To improve the accuracy of the simulation in the future, a better understanding is needed of LS-DYNA's built-in materials library and contact algorithms.

104: Katherine Ayling

Faculty Sponsor: Stephen Padalino, Department of Physics & Astronomy

Measured Time-Thrust Graphs for Estes Rocket Engines

The purpose of the performed experiments was to accurately measure the time-thrust curves for a series of Estes Rocket Engines. The Estes engines under investigation varied in size from a B6-6 to a D12-7, which roughly correspond to burn durations of 0.8 to 1.8 seconds and which have average impulses ranging from 6 and 12 Newton-seconds respectively. In order to measure the engine Thrust as a function of time, a test bench and rocket engine mount with blast shield were constructed. The engine mount was firmly attached to a PASCO force sensor which was bolted to a fire resistant steel test bench. The output voltage of the PASCO force sensor was recorded on a digital storage scope. Once an engine burn was completed the voltage-time data was then transferred from the scope to a computer. Pervious to the commencement of testing, a series of careful voltage-force calibrations were performed on the PASCO force sensor which allowed the voltage measurements to be converted to unit of force in Newtons. The Time-thrust curves obtained from these measurements were used in a realistic calculation of model rocket flight which will also be presented at the Geneseo GREAT day poster session. Funded in part by the department of physics at SUNY Geneseo.

105: Tyler Manee

Faculty Sponsor: Stephen Padalino, Department of Physics & Astronomy

Design and Construction of a Wind Tunnel for Testing Model Rockets

A wind tunnel was constructed in order to measure the drag coefficients and test the stability of model rockets before flight. Two 1,100 CFM blowers were attached to a 5 ft. long cylindrical construction form with an 8-inch diameter. For observational purposes, a transparent window of the same curvature as the tube was installed. To ensure that air flow within the tube was laminar, 1,000 straws were stacked and glued together to form a circular 8 inch cross section and placed in the front of the tube along the axis of symmetry. The pressurized air leaving the blowers then passed through the straws which directed the air stream in a laminar flow which passed over the rocket which then would be observed through the plastic window during testing. A ping-pong ball with a known drag coefficient was attached to a PASCO force sensor and used to calibrate the drag force acquisition system. Using the ball's known coefficient of drag, the velocity of the air within the tunnel could be determined. Rockets were suspended from their center of mass by a support post and string assembly and set into the middle of the flow. The rocket's stability and drag coefficient were measured using this system. The results of the drag coefficient measurements are being used in a mathematical model to describe the rocket flight which is also presented here at the GREAT day by another research group. Funded in part by the department of physics at SUNY Geneseo.

106: Melissa Braaten, Julie True and Nathan Lauffenburger

Faculty Sponsor: Stephen Padalino, Department of Physics & Astronomy

Mathematical Model of Rocket Flight using Ordinary Differential Equations

This project was undertaken to realistically model the flight of an Estes model rocket with varying engine impulse curves. The mathematical model includes drag, lift and the changing weight of the rocket during powered flight. Three intervals for the flight were considered; powered flight, ballistic flight and parachute return. The model describes the position, velocity and acceleration of the rocket as a function of time. During the first interval (engine burn), thrust, drag, and lift were considered while the rocket's mass decreased over time, due to the continuous loss of exhaust mass from the rocket. During the second interval (ballistic flight), after the engines shut down, there is a coasting period. During this time only weight, lift, and drag come in to play. Finally, during the third interval, the model describes the descent of the rocket with an open parachute, where drag determines the terminal velocity of the craft. Beginning with conservation of momentum and force equations, ordinary differential equations were derived and solved using a variety of analytical and numerical methods. Empirical data obtained from wind tunnel and rocket engine tests were used to determine the final position, velocity and acceleration of the rocket as a function of time.

107: Nathan Lauffenburger

Faculty Sponsor: Aaron Steinhauer, Department of Physics & Astronomy

UBVRI Photometry of Open Star Cluster NGC 2420

The objective of this project was to perform photometry on the metal-poor open cluster, NGC 2420 by using five wavelength filters, UBVRI. Data were taken using the WIYN .9m telescope over one photometric night, with no cloud interference. Point Spread Function photometry was performed. Data was standardized by using known photometry of particular fields, namely Landolt fields, which were observed on the same night. Revised parameters of reddening, metallicity, distance and age were determined for NGC 2420. The reddening corrects for the amount of dust and other matter that the light scatters off of while traveling through space. Metallicity is the proportion of the matter of the cluster made up of elements heavier than hydrogen and helium. Due to the nature of open star clusters, the distance and age are assumed to be constant throughout the cluster. This study is part of an ongoing photometric study of this cluster, and our results provide an independent calibration of the magnitudes, reducing the systematic errors in the cluster parameters.

108: Sarah-Jane Scott

Faculty Sponsor: Stephen Padalino, Department of Physics & Astronomy

Testing the new Multi Parameter Data Acquisition System for the Geneseo Pelletron Accelerator Laboratory

SUNY Geneseo obtained funding to build a new Geneseo Pelletron Accelerator Laboratory (GPAC) at a cost of more than a million dollars. The construction of the new accelerator, rehabilitation of the old nuclear physics lab, installation of new beam lines and scientific

instrumentation are currently underway. In order to record, display and analyze the data that will be acquired by the new nuclear instruments in this facility it was necessary to obtain a modern Multi Parameter Data Acquisition (MPA) system. The MPA system is composed of two work stations where experimentalists can make measurements simultaneously and independently from one another. The MPA system was purchased during the summer of 2006 and arrived at Geneseo in September of 2006. Since that time the system has been assembled, tested and is currently being used to perform a few nuclear experiments prior to its relocation and installation in to the GPAC lab in April. The functionality and test results of this new system will be presented at this poster session. Funded in part by the United States Department of Energy through a grant from the Laboratory for Laser Energetics.

109: Susan Thomas, Melissa Cummings, Babatunde Anjorin, Sarah-Jane Scott, and Megan Brady

Faculty Sponsor: Stephen Padalino, Department of Physics & Astronomy

RaPTORS – Rapid Pneumatic Transport of Radioactive Samples

Rapid transport of radioactive samples has been a useful means of moving an activation sample quickly from a "noisy" target location to a detection area that has low gamma-ray and x-ray backgrounds. Many existing systems use mechanical linkages to perform this task. However, the half-lives under study in this investigation are of the order of 10 minutes while the distance between the activation site and the counting station is relatively far. This requires the system to move the sample at speeds up to 45 miles per hour. The current system has been designed to move the sample over a distance of several 100 yards through a variety of turns and elevations. The transport system was constructed using a pneumatically driven carrier. Pneumatic pressure is developed through the use of a series of blowers to create an air flow that can be used to move a carrier through linear sections PVC pipes and PVC over-bore "elbow" turns. Over 1000 operational cycles of the RaPTORS system were conducted to test its reliability and measure the carrier's speed in both the vertical and horizontal directions and through the turns. This work was supported in part by a grant from the U.S. Department of Energy through the Laboratory for Energetics.

110: Susan Thomas, Melissa Cummings, Babatunde Anjorin, Dustin Knight and Lee Gabler

Faculty Sponsor: Stephen Padalino, Department of Physics & Astronomy

VELoCiRaPTORS

VELoCiRaPTORS, or the Venting and Exhausting of Low Level Air Contaminants in the Rapid Pneumatic Transport of Radioactive Samples, is a phase two research project that advances the work previously done by this group on RaPTORS. The goal of the project is to build a transport device that will move radioactive samples quickly, and safely. Partway though the transportation of the sample from the reaction area to the counting station, the carrier will be brought to a stop and a vacuum blower will be used to vent the carrier removing radioactive gasses from it and the transport tube. Speed tests were performed with a vented carrier to demonstrate that there was negligible loss in speed, for a fixed blower pressure, compared to the original solid-surface carrier. In the final design a Geiger counter will monitor the level of radioactivity in the vented gasses to determine if the carrier can be delivered to the counting station safely. VELoCiRaPTORS is a prototype of a system that could be installed at both the Lab for Laser Energetics at the University of Rochester, and the National Ignition Facility at Lawrence Livermore National Laboratory. This work was supported in part by a grant from the U.S. Department of Energy through the Laboratory for Energetics.

111: David Abramo, Lee Papasergi, Brendan See, and Christina Kieffer

Faculty Sponsor: Stephen Padalino and Ed Pogożelski, Department of Physics & Astronomy

The Mechanical Properties of Spider Silk

Silk from the spider *Steatoda Triangulosa* is used to mechanically support direct-drive laser fusion targets at the Laboratory for Laser Energetics (LLE) in Rochester, NY. Using superglue, each target is suspended from 4 dragline samples, each of which consists of a pair of cylindrical lines. Empty targets are first attached to the silk, and then filled with fuel (deuterium, tritium, or a mixture of the two) over a long time period. During the filling process for cryogenic-DT targets, the silk is subjected to doses of beta radiation of approximately 100 Mrad. To examine the impact of radiation on silk strength, samples of silk were exposed to doses of beta radiation (ranging from several Mrad through several Grad). The strength of the irradiated samples was compared to the strength of unirradiated samples. It was found that there is no measurable impact on strength for doses less than 10Mrad, and that silk strength decreases logarithmically for doses larger than that. For the dose of interest (100 Mrad), the strength of the silk is found to be reduced by about 25%, indicating that the use of spider silk for cryo-DT targets is still a viable option.

112: Lee Papasergi and Benjamin Oliver

Faculty Sponsor: Ed Pogożelski, Department of Physics & Astronomy

Excel Data Uncertainty Analysis Plug-in Development

A Microsoft Excel Plug-In is under development that will determine the uncertainty in the parameters in a formula fit to a data set. The algorithm takes advantage of a property of the chi-squared goodness of fit test along with other statistical properties to find the uncertainty in each parameter. The algorithm relies on the Solver add-in included with Microsoft Excel. The plug-in will be easily operated by undergraduates of all levels through an intuitive user interface and can be used for any combination of mathematical functions supported by Microsoft Excel.

113: Alaina Maggio

Faculty Sponsor: Monica Schneider, Department of Psychology

Predictors of Attitudes about Bisexuality

This study is a web survey designed to assess the predictors of people's definitions of and attitudes about bisexuality. This is an important topic, as bisexual individuals often experience discrimination from both heterosexual and homosexual individuals. One possible explanation for attitudes about bisexuality that has not been investigated by prior research is threat. This study examines the relationship

between attitudes about bisexuality and three types of threat: (1) symbolic threat, or perceived value differences between groups; (2) realistic threat, or perceived power differences between groups; and (3) personal sexual threat, in which individuals feel threatened by their own sexuality. This study also examines the predictors of individuals' definitions of bisexuality. We varied self-identified sexual orientation, gender, sexual attraction, and sexual experience in various target descriptions and asked participants to rate the extent to which they believe the target is bisexual. This aspect of our study also contributes to the literature, as previous qualitative research has assessed bisexual individual's conceptions of bisexuality, but not definitions of bisexuality held by heterosexual and homosexual individuals. Moreover, no studies have examined these issues quantitatively. Currently, 160 individuals have completed the survey, which closes on March 9th. Results based on these data will be presented.

114: Peter Kang

Faculty Sponsor: Monica Schneider, Department of Psychology

Coping Resources and Strategies as Predictors of Ethnic Minority Students' College Adjustment

The present study compared sources of coping as well as strategies used by Latino, Black, and Asian students in their college adaptation. Additionally, the role of ethnic identification and ethnic expression in coping was examined. To this end, 151 Latino, 177 Black, and 119 Asian students from three institutions completed a survey assessing their: 1) demographic information, 2) ethnic identification, 3) ethnic expression, 4) sources of coping (i.e., family, friends from their ethnic group, friends outside their ethnic group, faculty/staff), 5) use of problem-focused, emotion-focused, and avoidant coping strategies, and 6) academic, social, and emotional adjustment as well as attachment to their respective institution. Analyses revealed significant ethnic group differences in students' coping sources. All ethnic groups, however, were found to use the same top two coping strategies (cognitive reframing: changing perceptions of stressful situations; avoidance: keeping busy with other activities). Although different coping strategies emerged as the strongest predictors of adjustment for the different ethnic groups, analyses revealed that the strategies students were most likely to use were not those that most strongly predicted adjustment. These results have important implications for our understanding of ethnic minority students' coping mechanisms and present ways to provide support associated with successful adjustment.

115: Peter Kang, Ryan Marker, Madison Pilato, and Catherine Urban

Faculty Sponsor: Joan Ballard, Department of Psychology

Functional Magnetic Resonance Imaging (fMRI) of Brain Activity during a Sustained Attention Task: Changes in Cerebral Blood Flow Associated with Performance Across Time

The ability to attend to one stimulus in the presence of others is often assessed by Continuous Performance Tasks (CPT). Changes in accuracy and speed across the duration of the CPT are considered an indication of the "vigilance decrement." Using functional magnetic resonance imaging (fMRI), the present study investigated relationships between reaction time (RT), task duration, and cerebral Blood Oxygen-Level Dependent (BOLD) activity. Given their putative role in attention systems, frontal and parietal regions were expected to show differences across the duration of the task and across different response speeds. To test this hypothesis, subjects' correct responses on the CPT were categorized as "fast" or "slow". Average BOLD response was compared across slow and fast response times and across the first and second half of the CPT. Results showed changes in BOLD signal across the duration of a task for areas previously identified as important for attention task performance. These areas included bilateral regions of the superior parietal lobe, anterior cingulate, medial frontal and orbital cortices, as well as prefrontal cortex and insula on the right side only. Future research is needed to determine whether these changes are correlated with vigilance decrements in task performance.

116: Bobette Buchanan, Carjah Dawkins, and Jill Rabinowitz

Faculty Sponsor: Ganie DeHart, Department of Psychology

Preschoolers' Use of Assertive and Affiliative Language with Siblings and Friends

As part of a longitudinal study, we examined preschoolers' use of assertive and affiliative language with siblings and friends. Thirty-three white, middle-class 4-year-olds were videotaped at home in semi-structured free-play sessions with same-sex siblings and friends. Videotapes were transcribed, and assertive and affiliative utterances were identified. Assertive utterances were those used primarily to influence or control others' thought or behavior—e.g., directives, assertions of desires, intentions, or opinions. Affiliative utterances were those used primarily to establish or maintain contact with others—e.g., showing support, expressing agreement or inclusion, seeking contact or approval. Utterances were further coded as mitigated or unmitigated. There were gender differences in use of both assertive and affiliative utterances. Boys produced more assertive utterances than girls did, with both siblings and friends. Boys' assertive utterances were more likely to be unmitigated than girls' were; girls' assertive utterances were more likely to be mitigated. Girls produced more affiliative utterances with friends than boys did, but boys produced more affiliative utterances with siblings than girls did. Our results suggest that the use of assertive and affiliative language depends on both gender and partner. Gender differences were somewhat more pronounced during interactions with friends than with siblings, especially for assertive language.

117: Luke Elser, Nicholas Mitrani, Ashley Olsheski, and Vanessa Tirone

Faculty Sponsor: Ganie DeHart, Department of Psychology

Qualities of Sibling and Friend Relationships as Predictors of Verbal, Physical, and Relational Forms of Aggression

As part of a longitudinal study, we examined the relation between sibling and friend relationship characteristics and physical, verbal, and relational aggression at two time points. Study participants were 43 white, middle-class children, videotaped at home at ages 4 and 7 in free play with siblings and friends. Mothers reported on sibling and friend dyads' harmony, intimacy, symmetry, and conflict at both ages. Videotapes were transcribed and coded for the three forms of aggression. At age 4, girls' verbal and physical aggression was predicted by sibling relationship symmetry and by friendship asymmetry. For boys, relationship symmetry was not associated with aggression toward siblings or friends. Intimacy predicted greater physical aggression toward both siblings and friends; this connection was stronger for girls

than boys. Lower conflict was predictive of relational aggression toward friends, more so for boys than for girls. Harmony was unrelated to aggression toward siblings or friends. At age 7, symmetry, intimacy, conflict and harmony were unrelated to verbal and physical aggression, regardless of gender or partner. Relationship symmetry was associated with relational aggression for siblings but not for friends. For girls, symmetry was associated with higher rates of relational aggression; for boys, it was associated with lower rates.

118: Rebekah Keegan, Elizabeth Lamme, Meghan Frazee, Kaitlin Roessle-Meerman, Krystina Danizio, and Stephanie Knowles

Faculty Sponsor: Ganie DeHart, Department of Psychology

Pretend Play with Siblings and Friends in Early and Middle Childhood

As part of a longitudinal study, we examined pretend play with siblings and friends in early and middle childhood. Study participants were 47 white, middle-class children, videotaped at home at ages 4 and 7 in free play with siblings and friends. Videotapes were transcribed and coded for pretend play (nonliteral representation of object, partner, or self). Each pretend play episode was further coded for duration, negotiation vs. enactment, and solitary vs. joint pretend. At age 4 children engaged in more pretend play with friends than with siblings. At age 7, this pattern continued for children with opposite-sex siblings, but reversed for those with same-sex siblings. At both ages pretend episodes with siblings were longer and more likely to involve actual enactment than those with friends, but friends engaged in more joint pretend. Sibling gender composition made a difference in the rate and nature of pretend play not only with siblings but also with friends. Our results suggest that understanding of children's pretend play must take age, gender, and partner into consideration. In addition, the impact of these factors seems to change over time, as children's social and cognitive skills develop and the nature of sibling relationships and friendships changes.

119: Pamela May and Vanessa Tirone

Faculty Sponsor: Jennifer Katz, Department of Psychology

Physical and Sexual Covictimization from Dating Partners: A Distinct Type of Intimate Abuse?

Most women who experience abuse, including physical violence and sexual coercion, are victimized by intimate partners. Though the prevalence and effects of physical violence and sexual coercion have been studied in marriage and in adult relationships, there is a paucity of research that focuses on multiple forms of abuse in young dating couples. The purpose of the present research was to examine the effects of multiple forms of dating partner abuse on relationship functioning. Covictimization was defined as the experience of both physical and sexual forms of abuse from dating partners. Covictimized women were expected to report less favorable relationship quality and more psychological harm as compared to other women. Data were collected from female undergraduates in ongoing heterosexual relationships ($N = 186$). Results showed that the combined effect of both physical and sexual abuse from partners was stronger than the effect of one form alone. Specifically, covictimization was negatively associated with women's relationship quality and positively associated with compliant behavior. Furthermore, covictimized women reported significantly greater partner intimidation, monitoring, and emotional abuse. Overall, findings suggest that dating partner covictimization is a distinct type of interpersonal abuse that warrants further investigation.

120: Michael Petracca

Faculty Sponsor: Jennifer Katz, Department of Psychology

Past Emotional Role Reversal and Adult Attachment: Associations with Excessive Reassurance-Seeking in a College Sample

Emotional role reversal occurs when youth prematurely assume adult caregiving roles toward parents. Because caregiving toward parents may partially satisfy youth's needs for closeness but not for support, role reversal may lead primarily to attachment anxiety and secondarily to attachment avoidance. One consequence of role reversal and anxious attachment may be excessive reassurance-seeking -- a tendency to continually seek confirmation from others that one is valued, regardless of whether one's worth has previously been assured. We expected attachment anxiety to mediate the effects of past emotional role reversal on current excessive reassurance-seeking. Participants were undergraduates who completed self-reports of emotional role reversal, adult attachment, and reassurance-seeking. As predicted, emotional role reversal was more strongly associated with attachment anxiety than avoidance. Role reversal with mothers, but not fathers, predicted reassurance-seeking, and this effect was mediated by attachment anxiety. Youth who experience emotional role reversal with parents appear to be at risk for subsequent interpersonal difficulties to the degree that role reversal creates attachment anxiety. Future research focused on the origins of excessive reassurance seeking is needed.

121: Jillian Zeitvogel, Kaitlin Coryat, James Felluca and Bekki Keegan

Faculty Sponsor: Michael Lynch, Department of Psychology

The Effects of Neglect and Maltreatment on Early Childhood Self-Representation

The current study investigates how child neglect influences self-representation, and whether this self-representation is stable or varying throughout early childhood. To obtain a measure of self-perception, a semi-projective "puppet interview" was conducted at ages five and six with a sample of 180 children. Children were from similar economic, social, and geographic backgrounds but differed in terms of caregiving experiences (120 neglected, 60 nonmaltreated). Puppet interviews allowed us to assess self-representation with young children who lack the advanced verbal and self-reflection skills for a standard interview. The interview consisted of two types of questions: one measuring affective quality and the other measuring openness to imperfection. Our hypothesis was that children exposed to maltreatment and neglect in the home would have increased negative affect and decreased capacity to admit imperfection, and self-perception would remain stable. Preliminary data did not fully support this hypothesis and some unexpected results were found. Longitudinal analyses suggested that self-representation at age five did not strongly predict self-representation at age six. In particular, neglected children had a decreased likelihood of maintaining negative and open representational models of self. Decreased openness to imperfection could indicate a defensive reaction resulting from exposure to the demands of the school setting.

122: Claire Littlefield, Jeffrey Thomson, Christine Kemp, and Yusuke Yamani

Faculty Sponsor: Jeffrey Mounts, Department of Psychology

Dividing Attention Within and Between Objects

Participants were shown a visual display containing multiple objects. They were asked to make a pair of visual discriminations about features of these objects. This pair of discriminations could involve properties of the same object, or it could involve properties of two different objects. Discrimination accuracy was higher when the visual discriminations involved the same object, compared to different objects. This was true even when the different objects overlapped spatially, which suggests that visual attention can select visual objects (as opposed to spatial locations). However, there was some evidence for spatial selection, as discriminations involving different objects were better when they occupied the same compared to different locations.

123: Ashley Auspemyer, Craig Parzynski, Emily Hurley, and Sylvia Williams

Faculty Sponsor: Douglas Raynor, Department of Psychology

Rates and Personality Correlates of Physical and Sedentary Activities among College Students

Physical activity is associated with decreased risk for developing several chronic diseases, including obesity, diabetes, and cardiovascular disease. Independent of physical activity levels, time spent engaged in sedentary behaviors, such as television viewing, is predictive of poor health outcomes. Some research indicates that engaging in sedentary behaviors displaces time spent being physical active. However, other studies have reported that sedentary behavior has a weak or non-existent correlation with physical activity. Understanding the relationship between these behaviors, as well as their shared or unique psychosocial predictors, may facilitate the development of interventions to modify these important behaviors. The present study will report preliminary findings from an observational study with a sample of 60-70 college students. Physical and sedentary behaviors were assessed via self-report questionnaires, and the former was also assessed via seven consecutive days of objective accelerometry measurement. The Five Factor Model of Personality, a potentially fruitful taxonomy for predicting sedentary and physically active behaviors, was assessed via the NEO-PI. It is hypothesized that high levels of neuroticism and low levels of conscientiousness and extraversion will be associated with high levels of sedentariness. The inverse set of correlations is posited to exist among these personality traits and physical activity.

124: Maureen Harris and Jill Rabinowitz

Faculty Sponsor: Douglas Raynor, Department of Psychology

The Five-Factor Model of Personality and Health Behaviors: Results from the National College Health Assessment Survey

Recent national surveys suggest that a significant proportion of college students are not engaging in several salutary behaviors, such as exercising, eating fruits and vegetables, and getting sufficient sleep, and concurrently, many are engaging in deleterious health behaviors, such as binge drinking and unsafe sexual practices. In light of the potentially severe short- and long-term consequences of nonadherence to preventive health behaviors, the identification of factors that predict adherence is critical. When predictors are identified, appropriate interventions may be developed to enhance adherence and ultimately reduce chronic illnesses and preventable deaths. A substantial number of variables have been linked with adherence, but consistent findings across empirical studies have been lacking. Despite the overall lack of consistency in the literature, the Five-Factor Model (FFM) of Personality has emerged as a promising predictor of health behavior adherence. Although the utilization of the FFM in characterizing health behavior adherence has much potential, applications of the entire model, particularly among the college student population, have been relatively few to date. Therefore, the current study will be among the first to examine whether the FFM is an effective framework to use in predicting a variety of health behaviors in a large sample of college students.

125: Robert Ogle

Faculty Sponsor: Joan Zook, Department of Psychology

Looking Smart But Not Studious: Academic Self-Presentation Strategies with Peers

This study examined the effects of self-esteem, grade, and gender on adolescents' use of academic self-presentation strategies with their peers. Self-presentation strategies are social mechanisms used to create an impression of the self that is perceived as socially acceptable to peers, based on the dominant values of the peer group. It was hypothesized that students with lower self-esteem would be more likely to use self-presentation strategies that enhance their academic performance and downplay effort so as to appear behaviorally congruent with peer values and increase their social acceptance. It was additionally hypothesized that males and eighth graders were more likely to use self-presentation strategies. The use of strategies that enhance performance and downplay effort was more likely among eighth-graders than seventh-graders. Males were more likely than females to use these strategies, especially in the eighth grade. Use of these strategies was also higher in those with low self-esteem, especially in the eighth grade. This research suggests that there may be a social-cognitive shift between seventh and eighth grade, with adolescents becoming more adept at creating impressions more congruent with the values of their peers.

CONCURRENT PRESENTATIONS

SESSION 1 • 10:30 – 11:45 AM

Session 1- A • Anthropology and Geography

Milne 104

Session Chair: Paul Pacheco, Department of Anthropology

Dave Crawford and Jennifer Odien

Faculty Sponsor: Paul Pacheco, Department of Anthropology

An Analysis of the Canid Material from Brown's Bottom #1

The Ohio Hopewell culture of the Middle Woodland period is one that is rich with symbolism, but surprisingly little is known about the relationships that the Hopewell had with the animals that they dealt with on a daily basis. One particular animal that the archaeological record shows as having a longstanding symbiotic relationship with humans is *Canis familiaris*, the domesticated dog. Though there have been domesticated dog bones found at Hopewell sites, they have been vaguely reported if at all and are largely undocumented. This paper is a detailed report of the Canid material found at Brown's Bottom #1 (33Ro1104) in Ross County, Ohio as well as an attempt to draw some conclusions about the Hopewell from this material.

Ashley Treat

Faculty Sponsor: Paul Pacheco, Department of Anthropology

History of the Harness Farm

The Harness Farm, located about seven miles south of Chillicothe, Ohio is probably the single most archaeologically investigated property in the state. This 1700 acre + property includes the famous Liberty Earthworks, at least a dozen burial mounds, and innumerable archaeological sites. Interest in the property began with the pioneering work of Squier and Davis and has continued to this day as demonstrated by the on-going collaborative efforts of SUNY Geneseo and Bloomsburg University. Much of the reason for the frequent archaeological inquiry into the cultural resources on this property is the favorable outlook of the Harness family towards archaeologists. While conducting my research, I looked at the shifting ownership of the land since post-Revolutionary times and the archaeological excavations which have taken place here.

Michael Powers

Faculty Sponsor: Paul Pacheco, Department of Anthropology

An Analysis of the Brown's Bottom #1 (33Ro1104) Bladelet Assemblage: A Double-Blind Experiment in Use-Wear Analysis

Excavations (summer 2005, 2006) at Brown's Bottom #1 (33Ro1104), a proposed Hopewell domestic site in Ross County, Ohio, have yielded 186 whole and fragmentary bladelet specimens. In this paper, we first contextualize this lithic assemblage by comparing it with other significant assemblages from Hopewell sites. The next phase of our paper reports the results of our double-blind use-wear experiment in which low-power microscopy was used to identify use-wear created by processing mica and other materials in an attempt to create a feasible experimental methodology for determining possible bladelet use.

Brian Murphy

Faculty Sponsor: Rev Vasiliev, Department of Geography

Placenames in Western New York

The origins of several Western New York placenames provide a number of interesting stories that reveal the development of settlements in the New World. This presentation will examine several western New York placenames in depth, explaining the origin of each name, describing the location of the settlement, and providing an explanation behind the meaning of the name. Furthermore, this presentation will compare different types of names around western New York. The names which will be examined in this presentation are Blockville (Chautauqua County), Guyanoga (Yates Co.), Jewettville (Erie Co.), Kenmore (Erie Co.), Sloan (Erie Co.), Swormville (Erie Co.), and Woodsville (Livingston Co.). An example of the origin of one specific name would appear as follows: Swormville, located south of Clarence in Erie County, was likely named in honor of Adam Schworm, a settler from Bavaria who opened a store at the main intersection of the settlement, and was also the community's first postmaster. The spelling of the name has changed over the years from Schwormville to Swarmville, to its present Americanized spelling. The research in this presentation is an extension of the work done by Dr. Ren Vasiliev in her book, "From Abbots to Zurich: New York State Placenames."

Session 1-B • Anthropology and Sociology

Milne 105

Session Chair: Zhiming Zhao, Department of Anthropology

Casey Rampe

Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

Violence Against Women

This project outlines and explores the painful topic of violence against women. It looks beyond obvious cases of direct violence, seeking the underlying social structures responsible for the continuation of those practices. The overall premise of the presentation, therefore, is a recognition and investigation of *structural violence* and its consequences for women. Examples and personal accounts of violence drawn from a variety of cultural contexts serve to put a face on the global issue of violence against women. These case studies leave room for

discussion and reflection on the role structural violence plays in perpetuating violence of all kinds. The presentation concludes by promoting resistance against worldwide structural violence: our understanding of structural violence as an analytical tool that can be used to identify the causes of violence and also to address its root causes and ultimately improve conditions for all women.

Bethany Hawke, Patrick Kenny, Marie Ostrander, and Robert Wetzel

Faculty Sponsor: Elaine Cleeton, Department of Sociology

Service Learning as Transformational Pedagogy

This project was undertaken to incorporate New York Campus Compact values into the syllabus of Field Research Methods (FRM), Fall 2006. Fifteen students developed a research proposal for assessing the Xerox Multicultural Center's tutoring program. To do this, FRM students visited the Rochester After School Academy program at Freddy Thomas High School where they met with staff and students to discuss tutoring programs. "Transformational learning and leadership development" is a value identified by the New York Campus Compact to be one aim of higher education. In this course, students responded to the expectation that each class member participate in discussions of reading assignments on theory, methodology and methods, and their application to academic achievement shaped by race and class. The students traveled outside their comfort zone to Rochester to meet African American students living in impoverished neighborhoods. This connection moved the discoveries commonly associated with field research to a level supporting personal examination and reflection on commonly held assumptions about race and class. While lecture/test teaching prevailed as the primary pedagogical approach experienced by the students, they agreed that shifting to a collaborative learning approach was beneficial in several ways. First, students began to take their own, as well as their peers' insights seriously. Second, students noted that discussing even the most difficult reading assignments elevated their level of comprehension. Finally, students discovered through numerous discussions how the texts, field research findings, and beliefs held prior to taking the course connections, contradictions, and challenges. Discovering the role that their own white identity plays in everyday experience became a group focus. FRM students brought their field experiences back to the classroom for discussion and discovery. FRM students found the conference table arrangement of the classroom to be the place where they worked together to sort out stereotypes from actualities. Mutual respect made difficult, sometimes painful examination of identity possible. This was the starting point for building avenues for, and commitment to, civic engagement. FRM students found the collaborative structure of the course to promote respect, trust, and teamwork between the professor and the students and the students with each other. Students associated this process with integration of theory, applied sociology, and personal experience on behalf of critically examining issues associated with race, poverty, and education. Several students acknowledged a career shift in the direction of public service. Finally, students recommended that service learning, as described in this report, become a required experience for all SUNY Geneseo students. The proposed research project will be implemented in FRM, Spring 2008.

Session 1-C • Research in Economics I

Milne 213

Session Chair and Faculty Sponsor: Chris Annala, School of Business

Andrew White

The Contributing Factors of Winning and Whether Success Equals Revenue in the NFL

Most empirical studies in past sports economic literature have focused on Major League Baseball (MLB). But over the past twenty years, the National Football League (NFL) has grown to replace MLB as the largest and most popular spectator sport in America. Using data from 2003-2005 NFL seasons, this paper will discuss the most important factors in winning games, and also in a separate model, whether the victories achieved affect a team's revenues. The results from the first regression analysis indicated that points per game and points allowed per game were significant, and that turnover differential played an important role. Additionally, the paper shows that there was no significant relationship between winning percentage and revenue in the data set.

Sean Cogliardi

The Current Account Deficit's Drag on Growth: Fact or Myth?

As the current account deficit has continued to grow exponentially in recent years, more and more policy makers voice their concerns not only about national debt service, but also about the deficit's effect on US GDP growth. However, American output growth performance remains strong, consistently above that of any country in the European bloc, and inferior only to that of rampant China in recent years. This paper springs from the vocal fears that the deficit will soon bring the American economy to its knees, and considers some less vocal points of view that argue the deficit has become instead precisely the new propeller of economic growth for the United States. The paper will analyze the effect of the current account deficit on US GDP growth and compare it with other countries, particularly the United Kingdom, Germany, and Japan; it will also explore what causes the current account deficit to soar or shrink, and consequently suggest public policy recommendations.

George Sullivan

An Economic Evaluation of The Troubles in Northern Ireland: The Propensity to Participate and the Benefits of Peace

The Troubles refer to the period of conflict between the late 1960s and late 1990s within Northern Ireland, marked by sectarian violence between republican and loyalist paramilitaries, including the Irish Republican Army (IRA). While republicans and loyalists have differing political, and often religious views, the conflict is further exacerbated by British presence in Northern Ireland, and a number of civil rights issues. This analysis uses time series data including crime statistics, demographic information and economic indicators to create a model that evaluates individual motivation to participate in paramilitary activity. The relationship between socioeconomic trends and participation trends is estimated through the model, thereby highlighting the correlation between economic conditions and paramilitary activity. Further, the costs, both public and private, are estimated to demonstrate the potential economic loss associated with The Troubles. Finally, a brief

comparative analysis between the economy of Northern Ireland and that of the Republic of Ireland is provided, in hopes of quantifying the “peace dividend,” while also demonstrating the possible economic benefits of the unification of Ireland.

Session 1-D • Education and Communication

Newton 204

Session Chair: Michael Rozalski, School of Education

Caitlin Agnello, Mary Ashley Hoch, and Kristin Squires

Faculty Sponsor: Koomi Kim, School of Education

Children’s Reading Comprehension and Retellings

This paper is a write-up of an undergraduate literacy research project funded by the Geneseo Foundation. It was conducted with fourth grade students at Rochester City School #29. The study consisted of the analysis of students’ miscues and retellings to determine whether or not time was a factor in reading comprehension.

Jason Miller and Christy Finkie

Faculty Sponsor: Michael Rozalski, School of Education

Strategies for Promoting Positive Peer Interactions: Grades K-6

Children in schools today come from increasing diverse social backgrounds. While some students come from families who teach them social skills and how to deal with their emotions others lack those skills. Research suggests that children who display aggressive behavior are at greater risk of delinquency, substance abuse, school dropout, early parenthood and depression (Committee for Children, 2006). Second Step provides a series of grade-level curriculum kits that teach social-emotional skills to reduce impulsive and aggressive behaviors and increase their level social competence (SAMSHA, 2005). To test the effectiveness of the Second Step program, teachers in 8 schools completed the Teacher Evaluation survey before and after the implementation of the program in the 2005 - 2006 school year. From our analysis of the evaluations, we found Second Step be generally effective at preventing childhood aggression, but not with students with disabilities or at all grade levels. We are currently analyzing the grade-specific curriculum to create sensitive assessment tools to assess both students’ behavior and teachers’ perceptions, in an effort to discover at which grade level Second Step is most effective and to determine if it is equally effective with students with disabilities as it is on the general student population.

Colleen Keltz

Faculty Sponsor: Yu Zhang, Department of Communication

Mattie’s Café & Ice Cream: A Small Town Advertising Feat

Mattie’s Café and Ice Cream is an excellent advertising venture due to the multiple variables that must be considered before creating an advertising plan for this small business. After meeting with Mattie’s co-owner, Sidney Symington, and analyzing past advertising efforts, it was apparent the business was struggling to find an approach that would reach their diverse audience and give justice to their unique menu. There is a tendency in today’s technology driven world to try to adapt to the newest technology in every aspect of life. For Mattie’s, due to their limited budget and broad audience, it is within their best advertising interest to stay with the steadfast media outlet that is the newspaper. With a paper that reaches both the year-round Geneseo residents (The Livingston County News) and one that reaches college students (The Lamron), newspaper advertising is the most sensible option for Mattie’s. While this paper offers suggestions for media that should be used in future advertising ventures for Mattie’s, it also gives suggestions for promotions and a sample advertisement. In sum, it evaluates how a small business can stay afloat while juggling national chain and successful local businesses by making the most of their resources and playing off of the uniqueness of their business.

Megan McGinley

Faculty Sponsor: Yu Zhang, Department of Communication

The Christian Science Monitor: A Unique Experience with Journalism

The Christian Science Monitor, considered to be the “original national daily” (Symonds, 1998), was founded in 1908 by Mary Baker Eddy with the goal “to injure no man, but to bless all mankind” (“csmonitor.com,” 2006). Published by the First Church of Christ Scientist in Boston, Massachusetts, the Monitor is a nondenominational paper that provides well-written, innovative articles on international and domestic affairs as well as a features section. The only trace of spirituality in the paper is in “The Home Forum” section, which has been an integral part of the paper since Eddy founded the periodical.

Session 1-E • Political Science and International Relations

Newton 214

Session Chair: Edward Drachman, Department of Political Science and International Relations

Gregory Silverman

Faculty Sponsor: Edward Drachman, Department of Political Science and International Relations

The Influence of the Cuban American National Foundation on U.S. Foreign Policy: Radio and TV Martí

Reflecting the increased diversification of and immigration to the United States, the recent formation of numerous ethnic identity groups concerned about their ethnic kin and historic homeland has increased. One powerful ethnic interest group, the Cuban American National Foundation (CANF), was formed almost three decades ago in collaboration with the Reagan Administration and has played an extremely influential role in many governmental policies concerning the island of Cuba and diplomatic relations with states around the world. Informally directed by CANF, Radio and TV Martí are governmental programs dedicated to broadcasting information to Cuba. The Martí

projects illustrate how different organizational components and relationships of an ethnic interest group can serve to effectively promote policies and accomplish objectives.

Christopher Browne

Faculty Sponsor: Edward Drachman, Department of Political Science and International Relations

You Decide: What is the Best Exit Plan for the U.S. in Iraq?

While the 2003 U.S.-led invasion of Iraq produced an initially quick and efficient military “success,” it left the George W. Bush administration with a range of problems involving reconstruction and the need for a timely exit of U.S. troops. As the War has dragged on “sideways” (in the words of Senator John Warner), there has been increasing pressure on the country’s leaders to articulate an exit strategy. My research briefly addresses the events and motives leading up to the invasion, followed by an extensive account of the ensuing difficulties that now confront the administration. Major controversies considered include domestic and international pressure for changes in troop levels, mounting human and economic costs of a continued presence in Iraq, and differing opinions over the configuration of a new Iraqi state (or states). Special focus is given to the ongoing insurgency and the progress of the democratic state-building process. Methodologically, I utilize game theory to identify and evaluate possible policies and outcomes. American actions in Iraq will clearly determine the landscape of the Middle East, with implications for the world as a whole. A thoughtful consideration of possible U.S. exit strategies will therefore prove invaluable to both the government and the public.

Xiao Chen

Faculty Sponsor: Robert Goeckel, Department of Political Science and International Relations

Lawfare: The Use of Law as an Asymmetrical Weapon

It is the contention of this thesis that law, be it domestic or international, has evolved to become not merely a humanitarian hindrance to war as Cicero saw it, or an instrument of political policy as Clausewitz proposed, but a strategic weapon as well. Further, this thesis will seek to prove that the law as a weapon of war and politics is not only wielded by states, but by non-state actors as well. Of particular interest to this study is the use of law as a weapon within the context of a state/non-state actor conflict that has come to dominate the conception of war in the 21st century. The purpose of this thesis is first, to elaborate upon the theoretical underpinnings of the concept of law as a weapon and how it relates to broader international relations theory. Secondly, to explore how the phenomenon of Lawfare has been observed not only between states, but non-state actors as well. Finally, to examine three case studies of ongoing conflicts where Lawfare, as it is conceived within this thesis, is utilized.

Session 1-F • Honors Projects in Psychology

ISC 121

Session Chair and Faculty Sponsor: Olympia Nicodemi, Department of Mathematics

Alaina Maggio

Faculty Mentor: Monica Schneider, Department of Psychology

Predictors of Attitudes about Bisexuality

This study is a web survey designed to assess the predictors of people’s definitions of and attitudes about bisexuality. This is an important topic, as bisexual individuals often experience discrimination from both heterosexual and homosexual individuals. One possible explanation for attitudes about bisexuality that has not been investigated by prior research is threat. This study examines the relationship between attitudes about bisexuality and three types of threat: (1) symbolic threat, or perceived value differences between groups; (2) realistic threat, or perceived power differences between groups; and (3) personal sexual threat, in which individuals feel threatened by their own sexuality. This study also examines the predictors of individuals’ definitions of bisexuality. We varied self-identified sexual orientation, gender, sexual attraction, and sexual experience in various target descriptions and asked participants to rate the extent to which they believe the target is bisexual. This aspect of our study also contributes to the literature, as previous qualitative research has assessed bisexual individual’s conceptions of bisexuality, but not definitions of bisexuality held by heterosexual and homosexual individuals. Moreover, no studies have examined these issues quantitatively. Currently, 130 individuals have completed the survey, which closes on March 9th. Results based on these data will be presented.

John DiSarro

Faculty Mentor: Steven Kirsh, Department of Psychology

Hazing in Greek Organizations

Hazing practices in Greek initiations have come into greater prominence due to increased media attention and severity of hazing-related incidents. For better or worse, hazing continues to play a central role in the orientation and initiation of many organizations. The first step in understanding the role of hazing in Greek initiations is to define the word itself, understanding what acts constitute hazing and how hazing changes depending on the situational context. Research on Greek hazing is analyzed to determine the purposes and outcomes of hazing both for the organizations and their new members. Finally, the future of hazing is analyzed as organizations make changes to strengthen their new member initiations and conform to stricter college oversight.

Jaclyn McLaughlin

Faculty Mentor: Ganie DeHart, Department of Psychology

Psychopathology and Culture in Japan: The Case of Taijinkyofusho (Social Anxiety Disorder)

Cross-cultural research is necessary for an understanding of human psychology, particularly regarding issues of mental disorder. Cultural differences alter the etiology, symptomatology, and treatment of a variety of psychopathologies. Some disorders are, in fact, culture-bound (occurring only in a specific type of society). Without a thorough exploration of mental disorder across the globe, a true picture of the

human mind and its problems cannot be had. In this paper, I will review the literature on a particular type of psychopathology that has been recognized globally: social anxiety. However, this category is particularly useful because of a culturally-bound subtype that occurs in Japan called Taijinkyofusho. Taijinkyofusho (and its subsequent subtypes) is extant in the Japanese nosology of psychopathology, and roughly translates to 'fear of interpersonal relationships.' Its specific criteria demonstrate the way certain mental disruptions are unique to culture, as well as showing that general categories and patterns of mental disorder affect all humankind.

Session 1-G • Honors Projects in Science

ISC 123

Session Chair, Kate Huggler

Faculty Sponsor, Olympia Nicodemi, Department of Mathematics

Daniel Galka

Faculty Mentor: H. Cristina Geiger, Department of Chemistry

Synthesis and Gelation Studies of a Novel Biphenyl Dicholesterol Gelator

We report the synthesis of a novel gelator containing a biphenyl chromophore connected to two cholesterol moieties by flexible hydrocarbon chains (DBC). As reported earlier, amphiphiles containing trans-stilbene, phenyl and biphenyl chromophores connected to one cholesterol unit (MBC) form stable gels with a variety of organic solvents. In gels and other organized media trans-stilbene derivatives show strong evidence of ground state association to form "H" aggregates characterized by a blue-shift in absorption and a structured, red-shifted fluorescence. The phenyl and biphenyl amphiphiles show different behavior in gels suggesting that these chromophores exhibit very little or no ground state association. To investigate further the influence of the cholesterol unit in the aggregation process, we synthesized a dicholesterol biphenyl derivative. We expected that two cholesterol moieties would increase the formation of three dimensional networks of fibers and consequently lead to the formation of more stable gels at lower concentration. The dicholesteryl-(4,4'-oxybiphenyl)octanoate synthesized in our laboratory forms thermally reversible stable gels in octanol and butanol. We report the total synthesis, the gelation studies and the spectroscopic analyses of this compound in dilute solutions and in the gel state. A comparative study of BDC and BMC (biphenyl mono-cholesterol derivative) gels revealed that although the BDC gels are more robust and stable, the aromatic-aromatic interactions of the biphenyl moiety are considerably weaker on BDC gels than those on BMC gels. We propose an aggregate model that accounts for this behavior.

Jessica MacCormac

Faculty Mentor: Kazushige Yokoyama, Department of Chemistry

The Use of Nanomaterials in the Analysis of Proteins in Alzheimer's Disease

Amyloid-Beta (A-Beta) is a key protein involved in the development of Alzheimer's disease that functions in the brain. It can change its morphology and form protein aggregates that appear as plaques, disrupting normal metabolic tasks under certain environmental conditions that are currently unknown. It is known that A-Beta, attached at the surface of human blood cell membranes, plays a key role in forming fibers that lead to the development of Alzheimer's disease. Our group has been investigating a unique approach where the surface of nanoparticles is used for adsorbing A-Beta monomers. The spectroscopic investigation of gold colloidal nanoparticles mixed with A-Beta monomers was studied and the possibilities of surface adsorption were analyzed. Our observation is important in determining the particular characteristics and factors involved in A-Beta's specific function at a biological interface.

Kate Huggler

Faculty Mentor: Gary Towsley, Department of Mathematics

Modeling Influenza: A Comparison of Mass Action and Contact Network Models

Human social interactions have a great impact on the spread of disease. The world is becoming increasingly socially interconnected, facilitating the spread of pathogens across continents to many different populations. One such pathogen is the influenza virus. With the threat of highly pathogenic avian influenza becoming human transmissible, an influenza pandemic could be near. It is becoming increasingly important to understand the dynamics of the spread of diseases, particularly the spread of influenza. Predictions of virus spread can be made with an understanding of the virus dynamics, and mitigation strategies can be implemented based on these predictions. Two ways to model influenza computationally are with mass action and a contact network models. A comparison of the mass action and contact network models shows that the importance of human interactions in the spread of influenza makes the contact network model is a more appropriate model for the study of influenza.

Sadia Sahabi

Faculty Mentor: Ruel McKnight, Department of Chemistry

Relative Binding Modes and Affinity Studies of DNA-Binding Agents

Drug-DNA interaction is an active area of study because many therapeutic drugs exert their effects by binding to DNA primarily via intercalation and groove binding modes. Drugs that bind to DNA via intercalation usually results in unwinding of the DNA as the drug slides between adjacent base pairs. The extent to which unwinding occurs is drug-dependent. In this work, the relative DNA-binding abilities and modes of binding of drug molecules from two homologous series were investigated using a topoisomerase I DNA-unwinding assay. The first homologous series are the chalcogenopyrylium analogues of the blood-pathogen photosensitizer and photodynamic therapeutic candidate, 2,4-di(4-dimethylaminophenyl)-6-methylthiopyrylium iodide, abbreviated as the "IMY series". The compounds in this series were all found to exhibit varying degrees of intercalation versus minor groove binding abilities. The second group of compounds studied was a model homologous pair of naphthalene diimide (NDI series). The NDI series bind to DNA mainly via intercalation. Based on the structure of the compounds and from the results obtained, I hypothesize that the compounds from IMY series are primarily non-threading DNA intercalators whose binding to DNA is driven by hydrophobicity. On the hand, the NDI compounds are threading

intercalators whose DNA-binding ability is driven by substituent size and entropic contributions. Also reported is a classical intercalator (ethidium bromide) and typical minor groove binding agents (netropsin, distamycin, berenil, Hoechst33258, DAPI).

Session 1-H • Jamaica Kincaid: Redefinitions and Resistance

Welles 119

Session Chair: Nicole Tsapelas

Faculty Sponsor: Maria Lima, Department of English

Amanda Gitomer

Anger, Hope, and Resistance: The Writings of Jamaica Kincaid

Jamaica Kincaid has been writing for almost thirty years, and her works fall into many different genres: scholarly articles, fiction, non-fiction, and memoirs. One of the consistencies across her variety of work is her harsh criticism of neocolonialism. Officially Antigua became self-governing in 1967 and gained independence from the British in 1981; however, in many ways Antiguaners are still colonized intellectually, emotionally, and spiritually. Kincaid uses her writing to fight for true liberation for her people. Because of her controversial style, some people view Kincaid as a belligerent “race traitor,” but it is important to remember that she makes these serious claims about corruption in order to change Antigua for the better. In “I Come From A Place That’s Very Unreal” she explains that “Antigua is in terrible shape, and it should be changed into something better” (97). Through anger, Kincaid sends a message of hope that calls for Antiguaners to acknowledge the current injustices and fight for true independence from the British and from one another.

Andrew Coats

"Judging Ovando"

“Judging Ovando” looks at Kincaid’s short story “Ovando” as an allegorical critique of the power relationships that have established and continue to inform postcolonial reality in the “Americas.” The essay includes a brief description of the historical and symbolic contexts from which the narrator participates in discourse, highlighting the way the narrator navigates Western tenets and assumptions that contribute to the silencing of the subaltern’s voice. “Judging Ovando” also identifies some of the strategically unresolved issues Kincaid’s story raises, exploring some of the significant consequences these standing questions have for text and reader – beyond creating a sense of artful ambiguity. Finally, the presentation will raise and discuss multiple answers to the narrator’s central question to the reader--“who can judge Ovando?--to demonstrate the story’s relevance to both the moment of first-contact and the postcolonial context occupied by its readers.

Sabrina Harris

Playing God: Redesigning Origins in The Autobiography of My Mother

Jamaica Kincaid’s characteristically self-possessed writing style is found throughout *The Autobiography of My Mother*, where she retells her own story by interspersing her memories with the stories of her family members. In this novel, Kincaid repaints her origins through Xuela, her hypothetical mother, tracing the lines of heredity and location, managing to create a discussion about the meaning of motherhood and its postcolonial significance. In *The Autobiography of My Mother*, readers see the true scale of Kincaid’s vision, a massive reworking of history and heredity. Kincaid’s approach to her own origins is unique in that she sees in the absolutes of biology and genealogy fluidity and changeability, allowing them to be reformed in her image. She plays God with her own genealogy, creating childless mothers and injecting herself into her ancestors. By stretching the conventions of artistic license and channeling divine prerogative, Kincaid casts a godlike shadow over Xuela’s story. Here Kincaid’s ever-widening ability to create paradoxical situations and characters turns to her own history. By transforming herself into her characters, Kincaid gives them her creative power, forging self-possessed architects of their own destinies.

Session 1-I • Think Globally, Write Locally: Ecomposition and Genesee Valley Landscapes

Welles 121

Session Chair: Maria Gigante

Faculty Sponsor: Ken Cooper, Department of English

Rachel Svenson

Avoidance and Remembrance in the American Cemetery

My essay centers on the idea that cemeteries bridge the gap between the immense concept of mortality and our daily lives, brushing the ordinary everyday consciousness with the complex and uncomfortable idea of death. The general attitude toward cemeteries and the expressions that result provide a fascinating insight into the modern American discomfort with and avoidance of the concept of mortality. Several of the concepts and mindsets surrounding the ideas of death and remembrance are expressed in Emily Dickinson’s poetry; I use some examples of her work to mirror the concepts I explore. Apart from the cemetery’s identity as the embodiment of an idea, I discuss the cemetery as a psychological and physical landscape and how it connects the history of a town to its burial grounds, and ties a broader historical context to the individuals whose lives are documented and remembered in the gravestones of the cemetery.

Matt Lapennas

Succession and Conformity: Lawns as Planned Landscapes on the Geneseeo Campus

I was intrigued by the choice of planting a lawn in front of the new science building in the fall semester and by the lawns at Genesee in general since they are unsustainable and require a significant amount of upkeep. Lawns have become important and ubiquitous features of

American landscape. This paper explores the history of lawns and seeks to understand how they reflect important and disturbing aspects of culture in America and Geneseo.

Bob Hoffkins

Visions of the American Farmer

Often, and perhaps too often, the modern agriculturalist is relegated by societal perception into the role of a quaint symbol of nostalgia—a romantic figure in our idyllic visions of the past. Americans, who were once so deeply rooted in the very soil of this nation, have since lost touch with their farming heritage, and with it any hope for an accurate perception of those few who remain. This essay attempts to peer through the sediment of all that has served to marginalize and obscure the realities of the American farmer though providing some of the accounts and insights of a local farmhand.

Session 1-J • Gods and Monsters: Women Write Renaissance Love Poetry Welles 123

Session Chair: Alea Wratten

Faculty Sponsor: Julia M. Walker, Department of English

Alaina McDermott

“We Will Not Be Outfaced”: Phoebus and the Talent of Renaissance Women

Aemilia Lanyer's poems "The Author's Dream to the Lady Mary, the Countess Dowager of Pembroke" and "To All Vertuous Ladies in General" in *Salve Deus Rex Judaeorum* and Diana Primrose's "Induction" in *A Chain of Pearl* are British Renaissance poems that assert the worth of women during a time in which they were considered inferior in all areas. These poems are connected through their use of the mythological sun god Phoebus as a means of comparison, through which the poets argue that women possess the capability to become just as talented and accomplished as men.

Nicole Schwartz

Venus' Immortality: Shakespeare, Lady Mary Wroth and the Destructive Agent of Sensual Love

In Shakespeare's "Venus and Adonis" and Lady Mary Wroth's "Sonnet 1," the mythological figure, Venus, is a symbol of unfulfillment and isolation. Shakespeare reverses the gender roles in his poem, and Venus' forceful nature is viewed as masculine. In each poem, Venus' aggressiveness causes destruction to the heart and leaves the victimized women abandoned by their beloveds, creating an overall sense of loss.

Katie Pearce

Unfixed Beams: Katherine Philips' Refashioning of Masculine Images

Katherine Philips uses traditional masculine images and forms of Renaissance love poetry in order to celebrate the beauty and value of female friendship. Her echoes of and responses to male writers, specifically John Donne, allow her to depict a utopic friendship free of patriarchal influences. She creates this utopia through her forceful response to *Carpe Diem* poetry, the use of numerology and her response to Donne's compass conceit, as well as specific lines from his poems.

Session 1-K • English

Welles 133

Session Chair: Ed Gillin, Department of English

Katie Owens

Faculty Sponsor: Ed Gillin, Department of English

Death by Water: Pound's Excisions to Eliot's "The Waste Land"

T.S. Eliot's "The Waste Land" was originally much longer before it was edited by Ezra Pound. Now that a facsimile of Eliot's manuscript has been published, we can track the changes it underwent during the editing process. This paper explores Section IV: Death by Water, arguably the most enigmatic section of the poem, and the section which was most heavily excised by Pound. I argue that this section was much more coherent in its original form, and that the stanzas which were ultimately omitted contained important thematic links to the rest of the poem.

Amanda Dudek

Faculty Sponsor: Ed Gillin, Department of English

The Hanged Man Does Not Fear Death by Water: A Tarot Card Exploration of Humanity's Search for Hope in Eliot's The Waste Land

Section Four of T. S. Eliot's *The Waste Land* is unusually short and concise. It deals specifically with a dead sailor named Phlebas. This mysterious, briefly-mentioned, drowned man may signify the salvation of all humanity, the elusive ray of hope in the desolate existence mankind has created. He may be the meaning, the substance, the salvation of humanity. This is what *The Hanged Man Does Not Fear Death by Water* explores through its examination of the fortune told in the poem. The fortune is told through a series of fascinating tarot cards. Each tarot card has classically accepted, if ambiguous, meanings. When these meanings are coupled with the order in which they proceed from Madame Sosostris, a possible, sub-textual meaning surfaces. This meaning signifies a search, a journey. It becomes a meaningful set of chronologically connected ideas. Several interpretations of *The Waste Land* have been written, but this paper lets the tarot card fortune in *The Waste Land* interpret us.

Joseph Brognano*Faculty Sponsor: Richard Finkelstein, Department of English***The Ambiguity of Salvation and Predestination in Early Modern Drama**

Many scholars are bent on affiliating various Renaissance playwrights with assorted theological positions of their time. However, too little scholarship has been published which applies the multitude of theological perspectives that influenced each respective playwright to an analysis of his plays. Suppose the playwrights of Renaissance tragedies intentionally created ambiguous causes for the events preceding the demise of the lead character (hero, tragic hero, or antihero) to the comment on the hero's "possibility of salvation" and/or predestination. Such an ambiguous attitude toward destiny could represent a staged manifestation of the diversity of opinions at the time regarding the doctrine of predestination and how salvation may be achieved. Predestination means a divine decree foreordaining all souls to either salvation or damnation. "Possibility of salvation" means each individual character has an inherently sinful nature from which they need to be spiritually rescued. That "rescue," or salvation, comes as a free gift of grace to those who believe, which ultimately results from the individual's repentance. This implies it is indeed possible for the soul of any character within the play to be saved. However, the plays revolve around the lead character's uncertainty (or even refusal) of the possibility of his own salvation.

Session 1–L • The Problem of Evil**Welles 128***Session Chair: Suzanne Vliestra**Faculty Sponsor: Larry Blackman, Department of Philosophy***Amy Callahan****The Free Will Defense for the Problem of Evil**

Some of the most widely accepted attributes of God are omniscience, omnipotence, and omnibenevolence. There is also a great amount of evil in our world. The question arises of whether or not it is logical that a God who is omniscient, omnipotent, and omnibenevolent can coexist with evil. The basic argument is that a God who knew about evil, had the power to prevent it, and was all good would not allow evil to exist in the world. In my paper, I will argue along the lines of the free will defense. Evil in our world is not the result of an evil God; it is the result of people choosing evil. He gave people free will because making moral choices would be meaningless if we did not have the freedom to make amoral choices. I will also argue that no inherent contradiction lies in asserting the traditional attributes of God and concurrently admitting that evil does exist. Finally, I will discuss John Hick's argument that humans are in the process of creation. Humankind is undergoing a very long creative process in which many mistakes are made along the way. These mistakes account for the evil we suffer from.

*Student Commentator: Adam Kehoe***Justin Hagstrom****A Critique of Theodicies for the Problem of Evil**

The problem of evil deals with trying to reconcile the existence of an omniscient, omnipotent, and omnibenevolent being with the existence of evil. The existence of both would appear to be a contradiction, because if such a being existed, it would remove all evil from the world. One way to solve the problem is to deny the existence of such a being, or deny the existence of evil. Few people would deny the existence of evil, and theists do not want to deny the possibility of the existence of an omniscient, omnipotent, and omnibenevolent being. So instead, people have attempted to solve this problem by giving reasons why such a being would allow evil to exist. These arguments are called theodicies. The free-will defense states that evil exists because of the free will people have. The "end-of-the-day" theodicy contends that there is a reason for the occurrences of evil, and this will become evident to us in the end. The contrast theodicy states that evil is necessary to contrast goodness. In this paper, I discuss each of these theodicies, and why none of them actually solves the problem of evil, thus leaving the problem of evil open.

*Student Commentator: Liza Rosenof***Joseph Bargnesi****The Free Will Defense: An Insufficient Remedy for the Problem of Evil**

The problem of evil has been a bane to the God of classical theism. Theologians have attempted to absolve God from the responsibility of evil in a variety of ways. One of the most prevalent arguments has been the Free Will Defense. Forwarded by theologians like Alvin Plantinga, John Hick, Gottfried Leibniz, and St. Augustine, this position argues that evil need not be incompatible with God. In fact, evil may even be the best instrument for cultivating "second and third order goods" like heroism and freedom. This paper argues that the Free Will Defense is porous and ultimately insufficient at eliminating God from the responsibility for evil. Even if the theodicies of John Hick and Gottfried Leibniz had adequately justified the existence of some moral evil, there remains no justification for the great amount that exists. In addition, Plantinga's use of "fallen angels" to explain natural evil is rationally unjustifiable. I also argue that the classic conception of an omniscient and omnibenevolent God and the corresponding account of Adam and Eve in the Bible create difficulties regarding the existence of free will itself. By debunking the flaws in the Free Will Defense the problem of evil remains a bane to the classically conceptualized Judeo-Christian God. Although God's existence has not been disproved, I think the criticisms I present raise significant questions for the rational theologian.

Student Commentator: Kevin Duquette

Session 1-M • Women and the Bible

Welles 131

Session Chair: Lindsey Campana

Faculty Sponsor: Carlo Filice, Department of Philosophy

Michael LaBlanc

Women and the Bible

A discussion on how the Bible portrays women.

David Murphy

Women in the Bible: Differences in Perception between the Old Testament, New Testament, and Paul

Perceptions of Women have not been constant throughout history. Even in religions, woman's roles have been changing. Christianity is no exception, and after an analysis of different parts of the Bible, it is readily apparent that woman have gone from a negative and demeaning role in the Old Testament, to equality under Jesus' teachings, and then back to the Old Testament treatment with Paul.

KEYNOTE ADDRESS

Wadsworth Auditorium • 1:00 - 2:00 PM

Introduction by Christopher Dahl, President

Lynn Weber, Ph.D.

Through a Fly's Eyes: Addressing Diversity in our Creative, Research, and Scholarly Endeavors

Dr. Weber is the Director of the Women's Studies Program and Professor of Sociology at the University of South Carolina. Her research and teaching have explored the intersections of race, class, gender, and sexuality for over 20 years. For this work she received the American Sociological Association's Distinguished Contributions to Teaching Award and the Jessie Bernard Award for Distinguished Contributions to Research on Women. Since the publication in 2001 of Dr. Weber's book *Understanding Race, Class, Gender, and Sexuality: A Conceptual Framework* (NY: McGraw-Hill), her work has focused on bringing the insights of intersectional scholarship to the problem of persistent social inequalities in health.

CONCURRENT PRESENTATIONS

SESSION 2 • 2:10 – 3:25 PM

Session 2-A • Issues in American Politics

Milne 104

Session Chair: Marilyn Klotz, Department of Political Science & International Relations

Faculty Sponsor: Jeffrey Koch, Department of Political Science & International Relations

Nicholas Hoffman

The Challenge of Balancing the Democratic Ideals of Freedom and Equality in American Campaign Finance Law

Freedom and equality are longstanding democratic objectives. These ideals are in tension with one another in the area of campaign finance law. This research will examine areas of tension between these two ideals, particularly the tension between the concept of money as a form of free speech in campaign finance and the concept of equality of political representation as it applies to elections. It begins with a history of campaign finance in the United States and an explanation of current campaign finance law, and then examines various campaign finance reforms, particularly reforms that call for less restriction of campaign finance in the interest of free speech and reforms that seek greater restrictions on campaign finance so as to achieve more balanced political representation. Finally, some specific reforms are suggested in an effort to better balance these two competing ideals.

Kathryn Irving

Team or Tyranny: Hazing in High School and College Athletics

Over the years, the cost of being part of an athletic team has grown steep. Hazing, which is often associated with fraternities and sororities, has crept into the world of sports. In a hazing study done at Alfred University in 2000, 80% of 325,000 athletes responded that they were involved in hazing at least once in their lifetime. Hazing can consist of physical abuse, emotional or psychological torment or even binge drinking. Exposure to hazing in high school only further propels athletes into a downward spiral. Those individuals who take part in hazing in high school are more likely to participate in hazing later in life. Currently forty-four states have anti-hazing policies in place. However, these policies tend to be either too vague or so specific that certain actions go unpunished. There is a need for clear hazing legislation that can be applied consistently across the country. Education is also important in the fight against hazing. Athletes, coaches, athletic directors and other school officials must be properly educated about what constitutes hazing and how to prevent it in schools. Students must learn that there are forms of team bonding that teach respect without physically or psychologically doing harm to anyone. With the proper legislation, education and supervision student-athletes can rid themselves of this awful tradition.

Connie Kaplin

Abstinence-Only Education: Is It Really True that What Our Children Don't Know Won't Hurt Them?

This paper intends to discuss the dangers of adhering to a strictly abstinence-only education platform when discussing the health education programs offered in the public schools of the United States. To support the effectiveness of comprehensive sex education, comparisons will be made between the different programs and regulations in several states, utilizing such criterion as the types of programs offered and comparing them to the prevalence of teen pregnancy and the rate of sexually transmitted infections. There will always be children having sex, regardless of how many times they are instructed in the benefits of waiting. Thus, it has become the job of our educators to ensure that our children know how to protect themselves when they do decide to engage in sexual activities. Whether it is the right time or not for them to become sexually active, it is critical that they know how to protect themselves. How will they learn if we refuse to teach them? In order to properly protect our children and provide them with the critical knowledge that is necessary to lead healthy and safe lives, it is imperative that we adhere to a comprehensive sexual education curriculum that stresses both the importance of waiting, and congruently includes proper instruction on how to safeguard themselves and their partners whilst engaging in sexual activities. Armed with such information, it is likely that we will be able to reduce the prevalence of sexually transmitted infections, including HIV/AIDS, as well as unintended teen pregnancies and subsequently, abortions.

Joseph Bargnesi

James Madison and the Foundations of American Religious Freedoms

The freedom of religion has often been referred to as the "First Liberty". Religion has almost as often been recognized as one half of a tenuous relationship with government and public policy. This tension was the motivation for this paper's investigation of the theoretical and practical roots of American freedoms of religion. First, this paper derives the philosophical foundations of a natural right of free religious conscience. As the main author of the Bill of Rights and arguably the most active role in building religious freedoms, I focus on the thought of James Madison. After establishing the theoretical grounds, this paper looks at the authoring of the actual provisions within the United States Constitution and the Bill of Rights concerning religion. From an analysis of contemporary jurists, and academics, as well as thoroughly investigating Supreme Court cases, this paper concludes that the wording of the First Amendment results in a perpetual tension between the Establishment Clause and the Free Exercise Clause. The next step was to analyze the different theories on reconciling the two clauses. Following a description of the current status of Church/State relations, this paper offers some plausible suggestions for optimum observance of the American First Liberty.

Session 2-B • Physics and Astronomy I

ISC 121

Session Chair: Aaron Steinhauer, Department of Physics & Astronomy

Eric Boyd

Faculty Sponsor: Aaron Steinhauer, Department of Physics & Astronomy

Low Mass Stars in the Cep A Star Forming Region

We present the results of a near-infrared spectroscopic survey of the star forming region Cepheus A (Cep A). We used a multi object spectrometer on the Kitt Peak National Observatory 4 meter telescope to obtain infrared spectra of low mass stars in the central region of the cluster. The spectra for 26 members were classified by means of absorption features in these infrared wavelengths. The spectral types ranged from M1 to M6 with subclass errors of 0.5-1. These spectral types were combined with optical luminosities at the same wavelengths and placed on an H-R diagram. Comparison to pre main sequence evolutionary models yielded a median age of Cep A to be 1.35Myr.

Elise Jutzeler

Faculty Sponsor: Aaron Steinhauer, Department of Physics & Astronomy

Rocks in Space

This presentation will present partial lightcurve data for asteroids 252 Clementina, 329 Svea, 334 Chicago, 392 Wilhelmina, 596 Scheila, 517 Edith, 521 Brixia, and 713 Luscinia. The purpose of these observations was to collect data on these asteroids in order to create lightcurve fragments and better determine their shape, magnitude, and composition. These fragments can then be used to verify the findings of other researchers in order to more accurately determine the characteristics of said asteroids. It is the hope of the observers that the lightcurve fragments presented in these results may be used in conjunction with past and future observations in order to produce complete lightcurves for these bodies and thereby determine definite rotational periods for them.

Joseph Hughto

Faculty Sponsor: Aaron Steinhauer, Department of Physics & Astronomy

WIYN Open Cluster Study: Precision Photometry of NGC 2506

We present UBVR CCD photometry of the metal-poor open cluster NGC 2506. Data were taken with the WIYN 0.9m telescope over a photometric night and were calibrated using Landolt fields taken on the same night. We present revised parameters for NGC 2506 of reddening, metallicity, distance, and age. This is part of the ongoing WIYN Open Cluster Study and our results provide an independent calibration of the magnitude which reduces the systematic offsets in the cluster parameters.

Session 2-C • Biology

ISC 123

Session Chair: Jani Lewis, Department of Biology

Laura Titus

Faculty Sponsor: Robert O'Donnell, Department of Biology

Artemis and DNA Stability

Recurrent translocations are observed in a mouse model of pro-B cell lymphoma that is deficient in Artemis, a non-homologous end-joining (NHEJ) repair factor, and tumor suppressor p53, a cell cycle checkpoint protein. It is hypothesized that double strand breaks (DSBs) at common fragile sites may lead to increased chromosome fusion and exchange events. To determine whether Artemis is required to suppress chromosome translocations at common fragile sites, we examined whether Artemis deficient cells are more prone to breakage of chromosomal fragile sites than normal cells. Art^{-/-}, Art^{-/-}Trp53^{-/-}, Trp53^{-/-} and control wild type mouse embryonic fibroblast (MEF) lines were treated with aphidicolin, a potent inhibitor of DNA polymerase, and/or caffeine, an ATR inhibitor, which are both known to cause instability at common fragile sites. Metaphase chromosomes were scored for chromatid gaps/breaks by fluorescence microscopy, and FISH hybridization was used to determine the gap/break frequencies at known common fragile sites in the mouse genome. The results from these experiments clarify Artemis' role in stabilizing DSBs at common fragile sites and suppressing translocations.

Christopher Mayack

Faculty Sponsor: Kristi Hannam, Department of Biology

Visual and Magnetic Place Recognition in Foraging Honeybees *Apis mellifera*

Foraging honeybees navigate and orient themselves in nature using place recognition and compass orientation. It is still not fully known what various celestial cues, sun compass, and/or landmarks honeybees use to complete their foraging roundtrips. The purpose of this study was to determine if honeybees can discriminate places using distal landmarks or the angle of inclination of local magnetic fields. For visual place recognition, the trained bees were passively displaced 7.5m to a novel location for a difference in a 30 degree departure angle from the recording table. We found that honeybees can compensate the displacement in inter-patch foraging using distal landmarks. Moreover, once trained in a feeding location honeybees compensate passive displacement suggesting that they recognize the area utilizing distal landmarks. To test for magnetic place recognition, bees were trained to fly west to find food, if the Earth's magnetic field angle of inclination is unmodified at the starting location, and to fly east when it is modified electrically at the starting location. The results suggest flying foraging honeybees use the magnetic field angle of inclination for positional information. This is the first study to suggest that invertebrates can detect and utilize magnetic fields for positional information.

Gretchen Kelly and Mehr Qureshi

Faculty Sponsor: Kevin Militello, Department of Biology

Measuring Cytosine DNA Methylation in *Escherichia coli* Field Isolates

Escherichia coli DNA has been found to contain methylated cytosine at the sequence CCA/TGG. The role that this DNA modification is playing in *E. coli* is currently unknown. Laboratory strains show variability in this type of cytosine DNA methylation which leads to the conclusion that it is not an essential pathway in laboratory strains. Field strains are predicted to be under natural selection, and were thus chosen for this experiment to determine the requirement of this pathway in the field. Field strains were obtained from an array of animal and water sites. Genomic DNA was isolated using a commercially available kit. Digestion of the gDNA was done with a restriction enzyme digestion assay to determine cytosine DNA methylation status. Results demonstrate cytosine DNA methylation in every sample, which indicates this pathway is essential in the field. More samples will be tested, some of which are pathogenic. Further studies such as sequencing the gene responsible for cytosine DNA methylation and conducting a microarray experiment on mutant strains will be done in order to determine its biological role.

Sharon Pepenella

Faculty Sponsor: Jani Lewis, Department of Biology

N-Cadherin and Vimentin: A Dual Role in Motility or Just a Coincidental Coexpression in Carcinogenesis

This project involves correlating the expression of vimentin and N-cadherin with increased cell motility in carcinoma cells. N-cadherin is a glycoprotein that forms adhesions between cells. When N-cadherin is transfected into carcinoma cells, it has been shown to promote motility. Vimentin is an intermediate filament that plays an important structural role within a cell, and the misexpression of vimentin within a cell has been shown to promote cell motility as well. During carcinogenesis of epithelial cells, the misexpression of vimentin and N-cadherin leads to an upregulation of both within the cell, coinciding with a downregulation of E-cadherin, a glycoprotein normally found within these cells. Recently, it has been observed that under certain conditions N-cadherin and vimentin can interact. My experiments will examine the hypothesis that N-cadherin and vimentin expressed together in epithelial cells increases cell motility more than either molecule expressed alone. Two parental cell lines are being used (one expressing vimentin and one lacking) to see if vimentin increases the rate of

motility of the cells when N-cadherin is transfected into the carcinoma cells. I am using immunofluorescence to observe the cadherin and vimentin expression for the cell lines and western blotting to verify protein size and amount. Motility and scratch assays are being used to measure the cells rate of movement.

Session 2-D • Revitalizing Village Main Streets - A College and Community Service Learning Partnership

Milne 105

Session Chair and Faculty Sponsor: Mary Mohan, Department of Communication

Community Sponsor: Louise Wadsworth, Alliance for Business Growth

**Mike Baker, Joe Mignano, Jessica Carey, Martin Watkins, and Jessica Stratton
Nunda – In Search of an Image**

**Mallorie Rosenbluth, Crissy Lewis, Will Blette, Sarah Makarchuk, Joe Cashin, Andy Pareti, Bridget Tortora, Tom Venniro, and Tim Garback
Mount Morris – In Search of an Image**

**Cait Porte, Katie McLean, Greg Palatas
Livonia – In Search of an Image**

This panel showcases a service learning project pairing a community partner, the Livingston/Wyoming County Alliance for Business Growth with faculty and students from Comn 200 Theory and Practice of Public Relations class, fall 2006. Student panelists will present findings from their field research and will display the creative tactics that they designed in an effort to create more coherent images and to revitalize communication strategies utilized by the villages of Livonia, Mount Morris and Nunda. Student teams worked in conjunction with village officials and trustees in devising the communication plans that will be executed this spring.

Session 2-E • Honors Projects in Political Science and in Music

Milne 213

Session Chair: Ronald Herzman, Department of English

Faculty Sponsor: Olympia Nicodemi, Department of Mathematics

Christopher Browne

Faculty Mentor: Edward Drachman, Department of Political Science & International Relations

"Iraq Syndrome": Digging Into the Vietnam Analogy in Current Foreign Policy

Leaders often use historical analogies to determine and justify their foreign policy decisions. While the merits of such analogies are often debated, their use is all but inevitable, especially in recent cases involving the use of military force. One such case is the 2003 American-led invasion of Iraq and the ensuing reconstruction process, as scholars and policymakers have invoked frequent references to Vietnam to both support and criticize the Bush administration's policies. This paper addresses the extent to which analogies with Vietnam are applicable to the current situation in Iraq, and what lessons and policy suggestions can be derived from it. This is achieved through first considering analogies and decision-making from a theoretical perspective in order to determine criteria for an analogy's success, followed by an extensive analysis of both cases as they apply to those criteria. Issues considered include: motives and preparations leading up to each conflict; U.S. military goals and strategies; the differing characters of the opposition in each case; and currently available exit strategies such as "Iraqization," "cut-and-run," and "surge," as they relate to actions taken in Vietnam. Through such analysis, typical errors in analogical reasoning can be avoided and a more detailed understanding of the two cases can be achieved. This will ideally pave the way for an appropriate U.S. endgame in Iraq, while avoiding errors of the past in both foreign policy and analogical reasoning.

Stephanie Remick

Faculty Mentor: Kenneth Deutsch, Department of Political Science & International Relations

Rousseau and Education

In this talk, I will discuss the definitions of terms Rousseau uses in his theory on the state of nature and inequality.

Inbal Shilor

Faculty Mentor: Anne-Marie Reynolds, School of the Arts

Music in the Nazi Concentration Camps

Musical activities existed in many of the concentration and death camps, but the reasons and circumstances under which these activities took place varied greatly. Some musical activities were commanded by the Nazis for propaganda, humiliation or torture of victims, or their own enjoyment. Other musical activities were initiated by the prisoners as a means of resistance, an expression of despair, or simply a way to escape the reality of camp life.

Session 2-F • Social Violence: An Examination of Race, Class and Gender Inequalities **Newton 204**

Session Chair and Faculty Sponsor: Rose-Marie Chierici, Department of Anthropology

Andrea Keast

Resistance is Possible: Organizing Women's Grassroots Movement in Haiti

This paper will discuss the emergence of women's organizations as a result of political violence against women. The political instability of the country, especially during the past 60 years, has created a climate for violations of human rights and more specifically women's rights through the usage of rape and sexual torture as instruments of political and social repression. Yet, even with the loss of family, shelter, and honor, Haitian women continue to fight to gain justice for themselves and other women faced with similar experiences. Keast's analysis reveals that the strength of activist women comes from cultural aspects that allow them to persevere: dedication to faith and family. The cultural value of women as mothers and figures in Haitian Vodou is significant to the explanation of women's empowerment and how it is possible to find strength in the midst of suffering.

Tarik Kitson

Health Disparities in an Inner City Neighborhood of Rochester, NY: A Critical Medical Anthropology Approach

This paper is based on ethnographic research conducted during the summer of 2006 with the Jefferson Family Medicine center in an inner city neighborhood. The study explored the cultural, social, and economic factors that contribute to ill health among residents. The data shows that some of the barriers to health include low-level access to health insurance, physician care, difficulties in accessing government sponsored social programs, unavailability of sources of healthy foods lead to a number of health problems such as obesity, vascular disease, and diabetes. An analysis using Critical Medical Anthropology highlights that risk factors are but symptoms of structural violence and systemic inequality.

Andrew Coats

On Katrina and the Politization of Suffering

In the aftermath of Hurricane Katrina, facts, figures and photographs of those trapped in New Orleans flashed across television screens throughout the nation and around the world. Accompanying these representations of human suffering were disparate arguments about political liability and systemic causation at all levels of government, about individual responsibility and collective morality, and about the role of social constructs such as race and class in setting the stage for the disaster that emerged in the wake of the storm. Since Fall 2006, I have been developing a theoretical framework which incorporates critical medical anthropology, along with social and cultural theory, to understand the politicization of suffering, and using this theory to explicate meanings from various accounts of Katrina's impact on New Orleans. In this paper, I explore how suffering enters the public discourse from different perspectives, and discuss how exchange among these perspectives determines the shape suffering will take once its presence has been rendered into political currency.

Session 2-G • Influences on College Women's Sexual Health: A Focus on Perceived Sexual Obligation, Relationships with Fathers, and Past Victimization

Newton 214

Session Chair and Faculty Sponsor: Jennifer Katz, Department of Psychology

Nicholas Mitrani

Effect of Relationship Context on Perceived Sexual Obligation

Although harmful, nonviolent sexual coercion leading to unwanted penetration is not consistently perceived as deviant. This minimization could be due to the belief that some victims are obligated to engage in sex, even when sex is unwanted. In the present study, we compared the perceived sexual obligation of women coerced into sex across four different contexts: acquaintance, friend, dating or engaged. We hypothesized that perceived sexual obligation may stem from sexual expectations about marriage, romantic relationships, or both. Undergraduates (N = 208) were randomly assigned to read one of four hypothetical scenarios and reported on perceived victim sexual obligation. As expected, observers perceived significantly greater sexual obligation in the dating and engaged conditions than the acquaintance scenario. In addition, across all four conditions, men perceived greater victim sexual obligation than women. Results suggest that perceptions of sexual obligation may contribute to the minimization of coercion perpetrated in romantic relationships. Such perceptions may increase the risk of sexually coercive behaviors and reluctance to directly resist unwanted sexual advances by romantic partners.

Julie True

A Retrospective Study of Father-Daughter Relationships, Attachment Security, and Young Women's Experiences of Unwanted Sex

Approximately 60% of women who had positive relationships with their fathers report having satisfying marriages and romantic relationships (Morgan, Wilcoxon, & Satcher, 2003), indicating that girls' adolescent interactions with fathers may be important predictors of daughter's later interactions with male peers. This study examined three types of father behaviors toward daughters: emotional responsiveness, expressed confidence, and conventionality. We expected that more positive father-daughter relationships would increase attachment security, which in turn, would predict decreased risk for sexual coercion with male peers. Participants (N = 79) were undergraduate women who completed measures of father behaviors, attachment security, and coerced sex since age 14. Fathers reported on their behaviors toward daughters via surveys through the mail. As expected, both father emotional responsiveness and father competence,

but not conventionality, were positively associated with attachment security and negatively associated with sexual coercion. However, attachment security did not mediate the effect of either emotional responsiveness or competence from fathers on daughters' reports of sexual coercion. The findings of this study indicate the importance of father-daughter interactions, in part because they are associated with decreased risk for sexual coercion experiences. Findings support the need for development of programs fostering positive father-daughter interactions during adolescence.

Vanessa Tirone

Childhood Sexual Abuse, Past Partner Sexual Coercion and Gender Based Dating Beliefs as Predictors of Women's Sexual Health Assertiveness

Past unwanted sexual experiences may negatively impact women's sexual assertiveness, decreasing their abilities to protect themselves from sexually transmitted infections and unwanted pregnancy. Such experiences may lead to gendered beliefs, contributing to interactions that foster female passivity. We expected that women who experienced childhood sexual abuse (CSA) or the use of coercive tactics by former sexual partners would endorse gender based dating beliefs (GBDB) and lower sexual health assertiveness with current partners. Female undergraduates (N = 159) in exclusive heterosexual dating relationships reported on CSA before the age of 14, past partners' coercion after age 14, GBDB, and sexual health assertiveness with current partners. About 20.8% and 89% reported CSA and past partner coercion, respectively. Coercive sexual experiences with past partners and GBDB predicted lesser sexual health assertiveness. CSA was related to past sexual coercion and GBDB, but not sexual assertiveness. Results demonstrate that many women have unwanted sexual experiences, which may influence how women believe they should act in a sexual context and, in turn, their ability to ensure condom use. Further research is needed to identify aspects of heterosexual sexual negotiation that influence women's abilities to successfully assert themselves.

Session 2-H • Was Jane Austen a Feminist?

Welles 119

Faculty Sponsor and Session Chair: Celia Easton, Department of English

Kathryn Adams

Outfoxing Subordination: Empowerment of Jane Austen's Witty Women

Jane Austen demonstrates a feminist consciousness by allowing her female characters language supremacy. Daringly denouncing approved society functions, the clever women of Jane Austen's novels use clever language to define their individuality, reclaim public and private dignities, and revolutionize their literary destinies.

Mary Annonio

Jane Austen and Mary Wollstonecraft: A Significant Feminist Connection

Although Jane Austen was not particularly blatant about any political or social issue, her the refined subtlety of her style, her great attention to detail, and her endlessly clever wit create social commentary within the romance plot. Recent criticism has also proved a significant connection between Austen's novels and the work of more explicitly feminist writers of the time, namely Mary Wollstonecraft and "A Vindication of the Rights of Woman."

Sara Germain

The Pen is in My Hand: Feminism in Jane Austen's Novels

Jane Austen is not apparently a feminist: her novels end in the "prison" of marriage; her heroines are dutiful and agreeable wives. Some female characters are clearly inferior to the males in the novels. But Austen nevertheless can be seen to critique patriarchal values through characterization, wit, and humor, portraying the success of women who dare to be different in a society that has already limited choices.

Meghann Gordon

The Accomplishment of Reason: Feminism in Jane Austen's Novels

Labeling Jane Austen a feminist is problematic, since she does not explicitly advocate for women's rights. It has been argued that since all of her heroines achieve greater economic stability and happiness through marriage that Austen is really promoting traditional patriarchal values in her novels. Yet this labeling of Austen as a conservative ignores how her heroines are intelligent young women who undergo self-development and how the creation of such heroines could be labeled as an expression of feminism.

Session 2-I • Apron/Queer/Yawn: Scenes from the History of the English Language

Welles 121

Session Chair: Benjamin Gajewski

Faculty Sponsor: Graham Drake, Department of English

Felicia Neveland

Once Apron a Time

My paper details the history of the word "apron". "Apron" comes from an Old French diminutive for table-cloth, naperon. Once in English, "a napron" was modified into "an apron". The Oxford English Dictionary's first example of this spelling is from 1535. Much like in Old French, the word experienced several other spelling changes after this point. One first sees its current spelling in a 1601 quotation from Shakespeare. The OED's definition of "apron" notes three key elements. At least one is evident in each of the words various applications. The three are: garment, protective, and having ties.

Kim Winkelman

The Metamorphosis of Queer

“The Metamorphosis of ‘Queer’” explores how the definition of “queer” has changed over the centuries. Using the Oxford English Dictionary for reference, “Metamorphosis” attempts to understand how the word in question could transition from its earliest meaning of “to thwart,” to a type of forged currency, to the recent “strange or abnormal,” to its current ambiguous use in regard to homosexuality.

Maria Gigante

History of Yawn

This essay provides a brief history of the word “yawn,” specifically focusing on changes in meaning and spelling over time. It also explores the possibility that “obsolete” definitions are still valid, as they may give insight into the scientific explanation for yawning.

Session 2-J • FRANKENSTEIN as a Critique of the Enlightenment

Welles 128

Session Chair: Dan Fenaughty

Faculty Sponsor: Maria Lima, Department of English

Kathleen O’Connell

“Implications of Science and Reason on Human Character”

Written during the Industrial Revolution, Mary Shelley’s *Frankenstein* (1816) warns of the dangers associated with the technological developments of modern science. Rather than acquiring virtue through the accumulation of knowledge, Mary Shelley’s readers are encouraged to pursue a different epistemology—like the Romantics, they prefer to be guided by emotion and intuition. The structure of the novel allows the reader to learn about the acquisition of knowledge from three different points of view: that of Robert Walton, a scientist initially much like Victor Frankenstein, whose tale constitutes the novel’s main plot, and the inserted narrative of Frankenstein’s creature, in Rousseau’s eyes at least, natural man himself. As a cautionary tale the novel warns its audience to beware of the implications of excessive knowledge and the manipulation of nature.

Elizabeth Cronin

"The Creature's Fall"

As Jacques Rousseau’s *Discourse on Inequality* illustrates, romantics believed in man’s innate goodness. Mary Shelley’s *Frankenstein* parallels Rousseau’s description of man in the state of nature in her description of the Creature: he is guided by instinct and self-preservation only. The Creature is good until he acquires knowledge about human nature. The Creature becomes particularly angry at his creator for having given him the ability to learn and feel in a body which mankind shuns. The progression of the creature from good to destructive and violent contradicts a central Enlightenment idea: that the pursuit of knowledge would lead to virtue and equality. Education only makes the creature realize his ugliness and inequality, forcing him to become an outcast, always alone and miserable.

Schuyler Wood

"Beware the Hand that Feeds"

“Beware the Hand that Feeds” is as cautionary as Mary Shelley’s novel itself. Against the optimism of the Enlightenment, Shelley, in Schuyler Wood’s reading, demands accountability from all scientists. There may be unforeseen consequences to scientific “discoveries” and not all knowledge leads to perfectibility and virtue. The creature embodies humankind as it is ripped from the state of nature and is as innocent as the noble savage (ignorant of sin). Although Frankenstein makes the creature and defies natural order with his abominable science, he is also victimized by it. Later in the novel he even redeems himself somewhat by refusing to finish the creature’s female counterpart. The essay poses the question whether Krempe and Waldman, Frankenstein’s teachers at university, can be blamed for Victor’s folly. The values idealized by the Enlightenment bring Frankenstein into contact with the materials and give him the means that cause his tragedy. Scientists must not be delinquents: they must prove it by measuring the value of their own scientific successes against the dangers they may create, and restrain themselves in their craft when discretion warrants it.

Session 2-K • English and History

Welles 123

Session Chair: Carol Faulkner, Department of History

Claire Ruswick

Faculty Sponsor: Emilye Crosby, Department of History

The History of Women at Geneseo State Normal School: 1900-1925

This project discusses the history of women at Geneseo’s Normal School in the early 20th century. It focuses mainly on the types of organizations they were in, such as athletics, literary societies, the school newspaper, the yearbook, and musical activities. The project also compares the college experience of women at Geneseo with the experience of women at surrounding universities. Through the use of archival materials, such as scrapbooks, yearbooks, newspapers, club log books, I will describe the life of Geneseo women students in the early 20th century.

Amanda Gitomer

Faculty Sponsor: Beth McCoy, Department of English

Struggles in “The Life” of the Harlem Renaissance: Interlocking Race and Sexual Orientation

The Harlem Renaissance was an African American literary and artistic movement, which took place during the 1920s and 1930s. This cultural movement primarily fought against societal racism. However, it is important to acknowledge the reality that many of the most notable writers, artists, and musicians of the Harlem Renaissance had same-sex romantic and sexual desires and relationships. Examples of Renaissance leaders who had same-sex interests include Alain Locke, Countee Cullen, Langston Hughes, Claude McKay, Wallace Thurman, Richard Bruce Nugent, Alice Dunbar-Nelson, Jessie Fauset, Nella Larson, Anne Spencer, Gwendolyn Bennett, Angelina Weld Grimké, Richmond Barthé, Ethel Waters, George Hanna, Ma Rainey, and Bessie Smith. This presentation deeply analyzes the problems and beauty of the diversity of voices in the Harlem Renaissances. My thesis goes beyond a shallow description or a simplistic celebration of the Renaissance by thoroughly examining the complexities of race, sexual orientation, class, occupation, age, gender, religion, morality, culture, individuality, community, betrayal, rejection, privacy, publicity, (in)visibility, art, aesthetics, politics, activism, love, desire, sex, representation, respect, performance, leadership, marginalization, opportunity, privilege, injustice, stereotypes, and discrimination and the ways in which these identities, practices, and values interact with one another.

Rebecca Ripley

Faculty Sponsor: William Cook, Department of History

Seventh Century Frankish and Anglo-Saxon Double Monasteries: A Pious and Unique Result of Aristocratic Christianity

This paper focuses on a type of early Christian monasticism, double houses, where an Abbess is in charge of male and female monks within the same monastery. Double houses are strange as they violate stringent female enclosure and gender separation. I analyze three Abbesses and their houses, Burgundofara, Sadalberga, and Hilde from Gaul and England. I focused on why this type of monasticism developed during this time and found that there was an increased desire in both areas for Christianity, that noble families were more likely to practice Christianity, and also that wealthy women were able to rise through the monastic ranks easily. Double houses also developed because of earlier family monasteries, and accommodated men and women’s desire to live in monasteries. These monasteries were often powerful politically, and held much land. Their tenure was short-lived, however, as the Church decided to re-institute a strict separation of the sexes. Double houses can be used to interpret society, gender roles, and the spread of Christianity in Gaul and England during the seventh century.

Session 2-L • "Oh, God!"

Welles 131

Session Chair and Faculty Sponsor: Stacey Edgar, Department of Philosophy

Diana Snyder

"To Be Like God"

Socrates, Aristotle, and Aquinas discuss “to be like God” as a goal for human life. This paper examines what this means for these thinkers and why it is a desirable goal. How much does such a goal reduce to being just? For Plato and Aristotle, does this goal have any relation to being like the ancient Greek gods, or does it aim higher? All three views involve using the intellect to become as close to God as possible. Intelligence is characterized as God’s greatest gift, and should be used well; knowledge without principles, and without humility, is dangerous.

Meghan Barner

"Is It Possible To Be Like God?"

A staple of the stereotypical enlightened lifestyle is the endeavor to bypass humanity’s weaknesses in order to emulate the Infinite (or God, or the universe, or whatever label one chooses). Many people struggle to live a life better (in a moral sense) than the average. Philosophers and theologians recommending “to be like God” include Aquinas, Plato, and Aristotle; their notions of “god” may differ, but they agree on the difficulty – perhaps even the actual impossibility – of achieving true god-like character. For Plato, it involves being just; for Aristotle, the life of contemplation is most godlike; and for Aquinas, it involves being good, a culmination of all positive attributes (such as wisdom and benevolence), and a person must constantly practice these attributes. But is it even possible to be like God, or is it incredibly arrogant to aspire to be so? God simply is what God is, humans have to strive to be good; but the effort, if carried out in the right way, is one of pious virtue.

Anna Hope

"What My Mind Tells Me Differs From What My Soul Tells Me"

A critical examination of several arguments for the existence of God – ontological, cosmological, and argument from design. If one understands the concept of God, does that entail that He necessarily exists? If one believes that events or things have causes, must there be a First Cause? If one recognizes that there is order in the world, does this imply that there must have been an (intelligent) Orderer? The strengths and weaknesses of these arguments are examined and weighed.

Session 2-M • Romance Languages & Literatures

Welles 133

Session Chair: Neil Campbell

Faculty Sponsor: Edward Van Vliet, Department of Foreign Languages & Literatures

Antoinette Harris

La Naissance du Vocabulaire Français

A paper concerning the creation of the French lexicon.

Sean Cogliardi

Il Governo Prodi et La Nuova Politica Estera Italiana

A paper concerning the external politics of modern Italy.

William Blevins

La Casa de Bernarda Alba: Un Documental Fotogràfico Sobre las Mujeres en los Pueblos de España

A paper concerning a photographic documentary of the women in the play "La Casa de Bernarda Alba."

CONCURRENT PRESENTATIONS

SESSION 3 • 3:30 – 4:45 PM

Session 3-A • Anthropology

Milne 104

Session Chair and Faculty Sponsor: Barbara Welker, Department of Anthropology

Christopher Grasso

Niche Partitioning Among Sympatric Hominids of the Plio-Pleistocene

The presentation argues for niche partitioning as practiced among sympatric hominids during the Plio-Pleistocene based on diet, morphology, and cross-species ecological analysis. It calls into the question the single-species hypothesis as proposed by Wolpoff but retains coherence with the competitive exclusion principle, sometimes called Gauss' Law. A multi-species model is alternatively favored as evidenced by the fossil record, suggesting at least two separate, coexisting phyletic hominid lineages. Studies indicate that these hominids were living sympatrically in overlapping niches and therefore exploiting a similar resource base. Such a possibility lends credence to the practice of niche partitioning, especially at the trophic level.

Patrick Kenny

A Study of Social Interaction within the *Papio alouatta* (Howler Monkeys), of Area de Conservacion de Guanacaste, Costa Rica

Traditionally *Papio alouatta* has been characterized as a highly non-social primate; using most of its energy in foraging and digestion. For the month spent studying them, they continually surprised researchers. Their group size was well above average (15-17 members, typically 7-9), the range used in their daily activities was rather small (approximately a 3 by 5 mile corridor), and as I will show through statistical analysis based on focal sampling of the males, this troop did indeed engage in numerous social interactions.

Alisa Nurminen

Variation in Maternal Care in *Propithecus edwardsi*, Ranomafana, Madagascar

In primates, maternal care is variable and is exhibited in a variety of ways. This project focuses on the effects of maternal age on mothering style in Milne-Edwards sifakas (*Propithecus edwardsi*). Study subjects were two free-ranging females, each with a nursing three-month-old infant. Mothers were classified as being either young or old with respect to the average mean age of a reproductive female. Mothering style was assessed as "nervous" or "relaxed" based on observations of direct and indirect care of infants, taken at five minute intervals. Direct care involved nursing, grooming, play, punishment, and defense. Indirect care involved an assessment of the proximity (i.e. distance >1m or <1m) between each mother-infant pair. It was predicted that the old mother would exhibit less direct care and maintain a less restrictive spatial relationship, based on the hypothesis that a "relaxed" mothering style conserves energy. Data analysis suggests that there is a relationship between age class and maternal care. However it is difficult to explain variation in mothering style as "nervous" or "relaxed" based on age with respect to energy expenditure.

Vincent Vess

Parental Condition and the Skewing of the Offspring Sex Ratio: A Test of the Trivers-Willard Hypothesis in Contemporary Humans

In mammals, a male in good condition is expected to out-reproduce a sister in similar condition, whereas a sister is expected to out-reproduce a brother if both are in poor condition. In the first part of their hypothesis, Trivers and Willard (1973) suggest then, that parents should theoretically invest in the offspring that will translate to the greatest reproductive success (via the production of grandchildren). Since parental condition directly affects the condition of the offspring, if the parental is poor, it would be advantageous to invest in the offspring of lowest reproductive variance, i.e. female. The parental investment facet of the Trivers-Willard hypothesis has been fairly well supported by data on humans in both historical and contemporary settings. The second half of the theory, and the focus of this test, states

that along with parental investment, natural selection would favor the ability for parents to adjust the sex ratio of offspring produced, in response to parental condition. There is a lack of research in this area in regards to humans, and this project aims to determine if there are proximate mechanisms working to adjust the sex ratio in contemporary humans based on the condition of the mother.

Session 3-B • Research in Economics II

Milne 213

Session Chair and Faculty Sponsor: Chris Annala, School of Business

Mohammed Partapurwala

Inflation Targeting and Output Volatility: Does the Trade-Off Exist?

In 1989, New Zealand became the first nation to formally adopt a monetary policy framework known as inflation targeting. Since then, more than nine industrialized nations and approximately a dozen developing economies have adopted this framework in order to curb high levels of inflation. A major indication of the success of this policy is that the inflation targeters have accomplished their primary objectives and have not abandoned the regime. Inflation targeting commits a central bank to a unique tolerable rate of inflation in a given time period. This rate can be a single number or a comfort zone. Regardless, monetary policy would be dedicated to keeping inflation within these prescribed parameters. It is important to note that inflation rates in the short term are fairly inflexible due to price and wage stickiness. Therefore, a viable inflation target will have little effect in the short term. Its importance comes in the medium and long term. Although this regime does have its merits, the costs of implementing it may come in the forms of lower economic growth and higher output volatility. The primary objective of this paper is to quantify, using regression analysis, this trade-off between price stability and output volatility with data from the twenty-two nations that have adopted explicit inflation targets. Additionally, this study will also outline the theoretical underpinnings of this framework and examine the overall success that inflation targeting has had in reducing inflation rates, especially in the developing world.

Jessie Startup

The Struggle between Economic Development and Environmental Sustainability

This study's objective is to illustrate the correlation between economic development and environmental sustainability. Development of countries requires energy to support the industry and higher standards of living associated with growth. Fossil fuels serve as the primary source of energy around the world. Increases in fossil fuel consumption and the recognition of their polluting byproducts has brought energy issues into the forefront of international discussion. Thus, fossil fuels are the primary focus in the discussion of developing economies and environmental sustainability. Regression analysis is used to quantify the relationship between dependent variables and independent variables. Petroleum, natural gas, coal, and electricity consumption served as the dependent variables in the regression analysis. Independent variables include economic development indicators and environmental sustainability data. Understanding the correlations between variables may lead to a greater understanding of how economic development can be achieved without disregarding environmental sustainability.

Jared Strohl

Effective Economic Development in the Rust Belt

The Manufacturing Belt, also known as the Rust Belt, is a region of the United States which has experienced significant economic strife over the last few decades. Stretching from New York to Illinois, this area used to represent vital economic activity, with manufacturing being the primary industry. Unfortunately, due to factors such as international trade, and the growth of other regions in the United States, the rust belt has experienced significant economic downturn. Major cities in the area, such as Detroit, Cleveland, Buffalo, Rochester, and Pittsburgh have seen their populations shrink, and their economy's collapse due to the manufacturing industry meltdown. Through econometric regression analysis, this study attempts to uncover the development strategies which have been most successful in combating economic downturn in the rust belt. With per capita income as the dependent variable, this model uses regional data to test the statistical significance of educational attainment, population growth, age distribution, social spending, job turnover, and industrial composition. Through this regression analysis, the most effective rust belt development strategies will be exposed. These results will lead to the establishment of economic policy recommendations to be implemented within the rust belt.

Session 3-C • Chemistry and Mathematics

ISC 121

Session Chair: Kazushige Yokoyama, Department of Chemistry

Nicole Briglio

Faculty Sponsor: Kazushige Yokoyama, Department of Chemistry

The Nano Size Dependence of Conjugation of the Amyloid Beta Protein on the Surface of Gold Colloidal Nanoparticles

Proteins immobilized at an interface are expected to behave differently from their counterparts in bulk solutions, and understanding the interactions of the proteins on the interface surface is crucial to designing a bio-composite device. Our particular interest is in conformational changes in Amyloid Beta protein solution (A β) on the surface of gold colloidal nanoparticles. The absorption spectroscopy was utilized to identify changes in the optical property of the gold colloidal nanoparticles coated with A β for a pH range of 2 to 10. Color changes were seen in different pH values as the size of the gold colloid was varied from 5 nm to 100 nm. The pH value for color change varied from pH 4.5 to 5.8. Considering that bare gold colloid changes color around pH 3, the surface net charge of the gold colloid must have been altered due to the conjugation of the A β protein on the colloid surface.

Paul Kogan

Faculty Sponsor: Kazushige Yokoyama, Department of Chemistry

Investigation of Nano-Scale Dependence in Gold Aggregation Process inside Silica-Based Sol-Gel Matrix

Gold colloidal nanoparticles of sizes ranging from 5 nm to 100 nm were embedded in a silica based sol-gel matrix. They were then exposed to 0.1M HCl, inducing the gold colloid aggregation reaction. While the gold colloid nanoparticles in solution aggregate at around pH 2, gold colloids encapsulated in silica gel required an acid concentration higher by a factor of 10 to aggregate. This aggregation was visually observed as a color change from red to blue, and the corresponding absorption spectra were monitored in real time. From the absorption spectra, mean peak position at each given time was extracted and the rate of gold aggregation was investigated with a first order reaction rate model. A clear increase in the rate of aggregation as a function of gold colloid size was seen up to the size of 40 nm. However, the reaction rate above 50 nm decreased drastically, implying the aggregation process was interrupted above this size. Especially for 60 and 80 nm gold colloids which preserved their original color with a reaction rate near zero. The reaction rate appears to be regulated by the gel cavity size. Further investigation is still in progress.

Kari George

Faculty Sponsor: Caroline Haddad, Department of Mathematics

Want a Date? You'll Have to Break These Codes First...

Want to tell that special someone just how you feel about them? If you're looking to reveal your true feelings, but are a bit shy, consider using this calendar cryptography system! Using mathematics, history, and some interesting details surrounding Easter, you can devise a system to encode a message to that special someone. Not only will you learn a few interesting facts about history, the calendar, and mathematics, you'll be able to develop your own cryptography system to send and receive messages, without other people knowing.

Brian Stone

Faculty Sponsor: Jeff Johannes, Department of Mathematics

Waiting for Patterns: Street-Smarts vs. Probability

A fair coin is flipped a number of times. Anyone with background in probability could compute the likelihood of a combination of heads and tails in a certain sequence. However, when waiting for one of several sequences of heads and tails, basic probability cannot show which pattern is more likely to appear first. This talk will discuss how one can compute an average waiting time for a sequence of events, and will show how using "street-smarts" can be more advantageous than more commonly-known mathematics to find these waiting times and probabilities.

Session 3-D • Physics and Astronomy II**ISC 123**

Session Chair: Savitri Iyer, Department of Physics & Astronomy

Brendan See

Faculty Sponsors: Ed Pogozelski and Stephen Padalino, Department of Physics & Astronomy

The Effects of Beta Radiation on the Mechanical Properties of Spider Silk

Silk from the spider *Steatoda Triangulosa* is used to mechanically support direct-drive laser fusion targets at the Laboratory for Laser Energetics (LLE) in Rochester, NY. Using superglue, each target is suspended from four dragline samples, each of which consists of a pair of cylindrical lines. The targets are then filled with fuel (deuterium, tritium, or a mixture of the two). During the filling process of the targets, the silk is subjected to doses of beta radiation. To examine the impact of radiation on silk strength, samples of silk were exposed to doses of beta radiation and compared to the strength of unirradiated samples. For the dose of interest (100 Mrad), the strength of the silk is found to be reduced by about 25 percent, indicating that the use of spider silk for cryogenic-DT targets is still a viable option.

Zak Robinson and Geoff Young

Faculty Sponsor: Charlie Freeman, Department of Physics & Astronomy

Noble Gas Analysis for Inertial Confinement Fusion

The OMEGA Gas Sampling System (OGSS) at the Laboratory for Laser Energetics can be used to study a wide variety of implosion parameters in inertial confinement fusion (ICF). By doping a target capsule with carefully chosen detector nuclei, nuclear reactions between fusion products and detector nuclei can produce noble gas isotopes. Following a capsule implosion, these gases are pumped out of the target chamber and are collected into sample bottles. We have developed a bench-top analysis station at Geneseo capable of determining the number of noble gas atoms present in the sample bottles. A needle valve is used to admit gas from the sample bottles into a vacuum chamber at a controlled rate. The conductance of the needle valve is a function of the pressure in the sample bottle and the type of gas. A residual gas analyzer (RGA) is used to measure the partial pressures of each type of noble gas in the vacuum chamber. The RGA is calibrated with a calibrated leak, which allows known amounts of different gases into the chamber at a constant rate. Preliminary measurements of the needle valve conductance as well as RGA calibration data will be presented.

Garrett Jones and Donovan Shickley

Faculty Sponsors: Savitri Iyer, Department of Physics & Astronomy, and Homma Farian, Department of Computer Science

Vortex Dynamics in Two Dimensions

A mathematical model of vortical dipole flow is pursued using the Navier-Stokes equations. Vortical dipole flow consists of two vortices moving together and spinning in opposite directions. The Navier-Stokes equations are conservation laws that describe the motion of fluids. The complexity of the equations has been reduced by assuming planar flow. A rectangular region of fluid is defined and discretized into

cells, so that a finite difference approximation of the Navier-Stokes equations yields a velocity field of the flow. An initial force is applied to one side of the region, with the intention of creating a stream of fluid evolving into a vortex dipole. Initial parameters such as pressure gradient and cell size have impacted the model's stability. The accuracy of the simulation will be determined by comparison to experimental results.

Session 3-E • International Political Economy: Development, Rights, and Competitiveness **Newton 204**

Session Chair: Jeremy Grace, Department of Political Science & International Relations

Faculty Sponsor: Victoria Farmer, Department of Political Science & International Relations

Jennifer O'Meara

Microcredit: Freeing the Poor?

Microcredit has received much attention from the media in recent history. With the awarding of the 2006 Nobel Peace Prize to Muhammad Yunus, the "father of microcredit," and to the Grameen Bank, hopes are running high for the end of absolute poverty. Through the distribution of small loans to poor people (especially to women) with no collateral, microcredit has the potential to help solve one of the world's greatest problems: poverty. Case studies of Bangladesh and India show that microcredit institutions have succeeded in aiding thousands of impoverished individuals. However, before the world hops on the "microcredit bandwagon," various shortcomings must be addressed. Questions remain regarding microcredit institutions' high interest rates, the effects on women, oversight, the inclusion of other forms of finance, and more. This paper will address these issues to illustrate how microcredit can play a major role in ending poverty.

Caitlin Morrison

Diaspora Politics: Remittances and Political Rights

Remittances have become one of the largest sources of hard currency for many developing countries. Due to the varied economic and political impacts that diaspora communities have on their home state, remittances can play both a beneficial or detrimental role in the development of low income countries. Some diaspora communities are afforded specific civil and political rights such as voting and semi-citizenship by their states of origin. The relationship between these political rights and the development of their home-state economies is the main focus of this paper. The question of whether diaspora communities sending remittances eventually receive greater political representation in their home-state will be addressed. Issues such as campaign financing by diasporas and extension of dual citizenship rights will also be examined in the context of the relationship. Another important concept addressed is the role that Offices of Diaspora Relations play in facilitating communication between diaspora and the home-state government.

Sean Cogliardi

Competitiveness and American Trade Politics

The seemingly unstoppable trend toward American reliance on foreign goods and increasing outsourcing of American jobs abroad has led to a general feeling of loss of competitiveness. Behind this startling phenomenon lies a process of refocusing America's comparative advantage: the United States is the world's leader in the financial services sector, and the rest of the world continues to trust the US to be the safest location for investment. The challenge for America, then, becomes not a challenge to retrieve those jobs lost by Microsoft, Nike, or Ford; the challenge becomes maintaining competitiveness in those sectors in which America is the best worldwide, without turning to protectionist measures that undermine free trade. This paper analyzes America's trade negotiation strategy and the approaches used to maintain and further its economic and political interests. Moreover, it will examine America's relations with internationalism and how the US uses its power to influence international free trade agreements when possible, or opt for bilateral agreements when not. Finally, the paper will evaluate the implications of these bilateral agreements and their undermining of a greater international purpose, and whether they are desirable for the United States in the long run.

Session 3-F • The Primacy of Social Interactions: Studying the Impact of the Social on the Physical **Newton 214**

Session Chair and Faculty Sponsor: Anne Eisenberg, Department of Sociology

Breana Behrens

What Does It Mean to be Social? Studying Asperger's

Normally diagnosed as a neurological and mental disorder, its key symptoms are social in nature. Understanding the underlying social aspects of the disorder may lead to better knowledge and treatment.

Robert Ogle

Who Else is There? Studying Schizophrenia

Schizophrenia attacks people in their late 20's and early 30's and is diagnosed and treated in terms of chemical imbalances. Our understanding of how social and environmental contexts affect schizophrenia can lead to better treatment protocol.

Jennifer Delcourt

No Longer Singing the Blues: Depression and its Social Links

Depression is a broad term for a variety of disorders that are diagnosed as emotional and mental problems. Usually treated with some form of medication, social connections may have serious implications for understanding what happens when depression descends. Such implications may have led to improved diagnosis and treatment.

Steven Fugle and Dana LePage

Riding the Rollercoaster: Understanding Bipolar Disorder

Bipolar disorder is treated as a chemical imbalance, yet the treatments often leave patients feeling numb and slow, making them unwilling to follow drug protocol. Understanding the social factors impacting onset and progress of bipolar disorder may lead improved treatment protocol that limit the need for medications.

Session 3-G • Redefining Beauty: Reading Zadie Smith's Novel

Welles 128

Session Chair: Chioma Chukwu

Faculty Sponsor: Maria Lima, Department of English

William Sankey

"Beauty as Force"

The French philosopher Jean Baudrillard appears in passing in Zadie Smith's novel *On Beauty* and, for the most part, is merely mentioned as a footnote to the novel's various themes. Yet, investigating the ideas of this contemporary philosopher leads one into a fuller understanding of all characters in the book--in particular, Howard Belsey who is a major source of strife for his family. In applying Baudrillard's notion of simulacrum to Howard Belsey's life, one realizes that Howard's consciousness and identity have become mediated, and thus transformed into an image of what an academic should be. This is where the central source of division for the Belsey family seems to derive from--precisely Howard's struggle to mold himself into an image of someone who does not really exist—a mere copy. Fortunately, Zadie Smith provides the reader with an escape from such an imitative life. Having Elaine Scarry's essay "On Beauty and Being Just" as one of its inspirations, the novel offers the reader a vision of plausible redemption for Howard by means of the saving qualities of Beauty itself. Hence, what Zadie Smith's text becomes is a staging ground where conflicting theories of aesthetics and simulacra are proposed, and in some ways, resolved.

Sabrina Harris

"Constructing the Human: Finding an Authentic Self in On Beauty"

From all the characters searching for happiness in Zadie Smith's novel, Kiki Belsey, the matriarch of the Belsey family, and her son Levi seem the most lost in the expectations of others. Reeling from the breakdown of her marriage to Howard Belsey, Kiki has lost more than her faith in her husband--she seems to have lost her identity culturally, sexually, and socially. Symptomatic of Kiki's identity crisis is her retreat into a black persona, an act she performs to put white people at ease. Levi, the youngest of the Belsey children, is a teenager caught between his own assumptions of what it means to be black and his privileged upbringing in the academic (=white) environment he grows up in. By adopting a faux "Brooklyn" accent, a hip-hop swagger, and wearing enormous clothes, Levi thinks he can somehow legitimize himself as a black man. To find his "blackness," Levi would only have to look toward his mother, but he does not think Kiki is "black enough." Both mother and son rely on cultural stereotypes in their seemingly futile search for an authentic black identity.

Kaitlin Snyder

"Burden of Beauty"

Victoria Kipps in *On Beauty* is often marginalized by characters and critics alike. However, on closer inspection, it appears author Zadie Smith has attempted to portray a character who, though trapped by outsiders within the identity of an eroticized Other, cannot be wholly defined by this stereotype. This burden of beauty is fully explored in Nick Laird's poem "On Beauty" included in the novel. Victoria's external beauty creates expectations which other characters, most explicitly Howard, exploit while Victoria herself tries to break free. Victoria's attempts to express an identity separate from that given to her are silenced and she is restricted only to what is considered acceptable of her cover-girl stereotype—one sexual escapade after another. These sexual encounters frame readers' evaluation of Victoria, in their own limited perception of her as a minor character, while moments expressing something more substantial within her are often ignored. The stereotype is thus transferred from major characters to readers as Smith seems intent in infecting those within and outside the novel with the same bias. This inability to see beyond beauty is a central theme in the novel, one that a careful reader immediately understands when also considering the similarities bonding Victoria and Zadie Smith's experiences.

Nicole Tsapelas

"'Ke-Ke-Ke-Ke-Ke!': The Manifestations of Erzulie in Kiki"

The essay entertains the idea that Zadie Smith has fused the character Kiki of *On Beauty* with the Vodoun Haitian goddess Erzulie. The manifestations of the goddess are the very ingredients of Kiki. Erzulie is the most prominent female deity, displaying fertility and motherhood as well as sexuality and destruction. Her most distinguishable feature is her duality. Kiki embodies the duality and paradoxical characteristics of the goddess in her personality and overall demeanor throughout the novel. The variations in Kiki coincide with the varying manifestations of Erzulie as Erzulie Dantor, Erzulie Freda and La Siren. The essay also intersperses an overview of Haiti's history and development, the origin of its rich Vodoun culture and the goddess' role within the Vodoun pantheon in the analysis of Kiki and ultimately the novel.

Session 3-H • Colonial House: Can PBS Mix Reality and History?

Welles 119

Session Chair and Faculty Sponsor: Caroline Woidat, Department of English

Patrick Gilchrist

The Reality of Reality

The general concept for most reality shows, such as the popular CBS series *Survivor*, is pretty simple: take people from every walk of life and put them in some type of adverse situation where they will be forced to work together toward a common goal. Whether they are stranded on an island, racing around the world, or competing against one another for money, a job, or “true love,” the struggles and personal revelations that participants experience during their time on any given show are aired for everyone in the nation to see. The notion of privacy is obliterated as people grow, change, and learn about themselves in front of the American public. In this way, reality television is a narrative of the human condition; like a written narrative, it is a useful tool for providing us with insight into ourselves and our culture. Specifically, the PBS show *Colonial House* gives us a unique glimpse into early American history, shedding light on the value of the culture we built, as well as the culture we destroyed, in order to build the foundations of the United States.

Perry Hull

Of Reality and Heresy

The PBS Reality Show “*Colonial House*” seeks to accurately recreate a 17th-century American colony. Executive producer Beth Hoppe, referring to early settlers, says “they would fit into modern day America better than one might think. From wearing bright-colored clothing and consuming large amounts of alcohol to testing the laws of the era, early colonists were a vibrant group of individuals.” However, many events throughout the course of the show display that while we share some similarities with 17th-century colonists, there remains an enormous difference in our values, culturally, socially, and spiritually.

Lisa Bonanni

A “Savage” Cycle: Culture and Conflict in Of Plymouth Plantation and Colonial House

There is a persistent pattern among European-Native American relations: since both peoples are from different cultures, it seems impossible for one to understand the other. William Bradford’s *Of Plymouth Plantation*, whether it is through Bradford’s words or the recorded actions of the colonists, shows how most colonists were ignorant to the natives’ side of things. The 21st-century “colonists” of the reality TV show *Colonial House* also admit to their lack of knowledge on how Native Americans live. More importantly, both Europeans and Native Americans, in *Of Plymouth Plantation* and *Colonial House*, have trouble understanding each other because of who they are, with prejudices developing between both peoples. In 1620, colonists could not imagine the Native Americans as human beings on the same level as them; the European way of life was considered superior. Likewise, the natives could not understand why the English were taking over their land and why they were attacking. Each group had different ideas regarding communication, with the definition of “savages” reversed. In *Colonial House*, the 21st-century colonists likewise have trouble understanding the Native Americans and vice versa. Rather than concentrating on what is the same, people concentrate on differences, continuing the cycle of conflict.

Alaina McDermott

The Individual vs. the Group: A Timeless Lesson

Anyone who has ever been part of a club or organization knows that people usually seem to have a great deal of trouble simply getting things done. Oftentimes, no amount of planning, ambition, or hard work can help in accomplishing the goals that we need to reach. In 1620, William Bradford was one among the many people that founded *Plymouth Plantation* with the necessity of creating a lasting settlement and paying back the investors who funded the colony. Years afterward he wrote *Of Plymouth Plantation* describing the experience. Nearly four hundred years later, the reality television series *Colonial House* placed a small group of people in an early American colony simulation, also with the need to survive and pay back their investors. Though the two colonies are radically different, they both make the same insightful observation about human nature: a group whose members have different values can rarely be efficient, because self-interest will always overshadow group progress.

Session 3-I • Honors Projects in Literature

Welles 121

Session Chair: Amy Wrobel

Faculty Sponsor: Olympia Nicodemi, Department of Mathematics

Karen Friedman

Faculty Mentor: Ronald Herzman, Department of English

The Golden Legend: the Life of St. Sylvester

“*The Lives of the Saints*,” a medieval manuscript seldom translated from Latin and even more seldom translated into intelligible modern English, tells the life stories of many of Christianity’s saints. This presentation will review the highlights of one selection, “*The Life of Saint Sylvester*,” and discuss the trials and tribulations of translating from a disused ecclesiastical language into something modern readers can understand.

Maureen McManus*Faculty Mentor: Robert Doggett, Department of English***The Feminism of Angela Carter and Caryl Churchill**

Angela Carter and Caryl Churchill are two often misinterpreted authors. Their works have been categorized as unfeminist or antifeminist because they challenge feminist thinking. However, looking at their works in the context of the history of feminism and particularly the move from second wave feminism to third wave feminism, it becomes clear that both authors were influential in the evolution of the feminist movement. Rather than opposing feminism, they were questioning it and furthering it. In particular, the views on the victimization of women, the significance of motherhood and the dangers of pornography presented in their works have been misinterpreted. Through the Bloody Chamber, The Infernal Desire Machines of Doctor Hoffman, Cloud Nine, Vinegar Tom and Top Girls, Carter and Churchill represent a switch in thinking from women as objects to women as subjects and a switch from antimodernism to postmodernism.

Katie Owens*Faculty Mentor: Kenneth Asher, Department of English***Ethics and Literature**

What precisely is the relationship between ethics and literature? One answer, proffered by Martha Nussbaum, is that literature can contribute to our moral understanding in a way that philosophy cannot: whereas philosophy demands only our rational faculty, fiction, a refined extension of experience, also exercises our emotions and imagination. Beginning with a discussion of the salient features of Aristotle's virtue ethics, my thesis will explore Nussbaum's argument that the form of the novel-- because it provides the rich detail and moral context requisite for moral perception, as well as elicits emotions which can also contribute to our moral understanding-- is especially compatible with Aristotle's brand of ethics. I will appropriate Nussbaum's theory in a critical analysis of George Eliot's Middlemarch.

Amy Wrobel*Faculty Mentor: Ronald Herzman, Department of English***Parallel Journeys: Dante's Quest for Spiritual Understanding and Parzival's Pursuit of the Holy Grail**

Though written a century apart and with no evidence that they share source material of any kind, Dante's Divina Commedia and Wolfram von Eschenbach's Parzival have incredibly analogous thematic connections. Some of their shared sensibilities include religion, the necessary development and maturation of the hero on his journey, the symbolic nature of the quest for understanding, and the timely appearances of guiding forces along the hero's way. My thesis will explore and analyze these parallelisms to achieve a better understanding of both texts, both literally and conceptually.

Session 3-J • African Americans at Geneseo: Historically and Today Welles 123*Session Chair and Faculty Sponsor: Emilye Crosby, Black Studies/Department of History*

Claire Ruswick, Christopher Basso, Sara Germain, Anna Delaney, Daniel Gaffney, Ryne Kitrow, Candace Walton, and Brian Hartle

Race, Gender, and Politics, 1950s-1970s

Cortez Jones, Tarik Kitson, Donte Ray, Maurice Brown, Scott Snowden, Chris Neels, and Candace Walton
Fighting Against Racial Injustice (FARI)

The panel will include presentations by two groups of students, those working on a Geneseo History project, "Race, Gender, and Politics, 1950s-1970s," and those involved in FARI (Fighting Against Racial Injustice). Together they will discuss historic and contemporary experiences of African Americans at Geneseo, based on research in the College archives, personal experience, and interviews with current and former students. While the preliminary research suggests that Geneseo never excluded African Americans, traditionally very few Black students enrolled in the College and, throughout most of the College's history, those who did were actively discriminated against on campus and off. The late 1960s brought a surge in Black enrollment, and, with it, the formation of a Black Studies program and a number of student-initiated protests. This increased enrollment was short-lived and most of the Black students who entered the College at the time, failed to graduate. The number and percentage of African-American students remains low and a number of current Black students have identified persistent racial discrimination and have begun organizing around some of the same issues as the Black students who enrolled in the late 1960s.

Session 3-K • "What is Real?"**Welles 131***Session Chair and Faculty Sponsor: Stacey Edgar, Department of Philosophy***Nathan Lauffenburger****"Where Am I?"**

There are numerous theories to describe how the brain and perceptions of humans connect to one another in the world we live in. Our minds could be said to be manipulated to believe it is in a world that does not actually exist. This argument appears to be flawed because of the claim for free will and choice. The brain could be functioning properly but there are actually no experiences or consciousness. A contradiction to this arises when the mind does not have control of its surroundings and things unexpected happen. A third argument is that the mind physically becomes what a human sees. When large, sharp, or odorous objects are perceived, then it doesn't seem logical for the

mind to become these substances. Lastly, the world could be completely independent from what is happening in each person's mind. This appears to be the most logical argument out of the set.

Toni Melville

"My Life as a Virtual Reality Video Game"

In the film TOTAL RECALL, Arnold Schwarzenegger plays a man who discovers that his entire life is a hoax, a virtual reality that has been implanted into his head with memories of events that never occurred. It is a science fiction film, but it raises the question whether or not objects actually exist in the external world, or if they could be merely programmed into one's brain/mind, and one would live life in a perpetual dream-world. If this dream-world is programmed, the question then arises who programmed it? – some powerful organization, or some "evil genius"? Does the programmer exist in an actual (not a virtual) reality? How is one to determine whether one is in the "real" world, or a brain in a jar (or in a chair in the Recall virtual reality laboratory)?

Jared Chester

"Reality: Real or Faux?"

An advanced enough technology could perhaps implant entire memories into your mind that convince you that you have actually experienced something (think of the science fiction movies BLADE RUNNER and TOTAL RECALL, for example). Is the chair you are sitting in real? If everything is in your mind, how would you even approach proving that there really is a chair, an external world? If an external world exists, and your mind exists, what is the correct way of describing the relationship between the two? What exactly IS a perception? If I begin doubting everything, I can at least be sure that I myself exist (even if I am being deceived), as Augustine and Descartes argued. It also seems that I am not in control of everything that I experience (perceive), so what implication does this have? Various models of what the relation might be between the mind (and its perceptions) and a possible external world are examined and evaluated. Stay tuned for the (argued) conclusion (that is, come to the paper).

Session 3-L • Issues in Ancient Greek Philosophy

Welles 133

Session Chair: Nichole Hungerford

Faculty Sponsor: David Levy, Department of Philosophy

Teale Kelly

Gorgias' Reply to Parmenides

Gorgias' critique of Parmenides' argument is understandable but wrongfully assumes that for something to exist it must fit Parmenides' characterization of 'it'. The question that needs to be answered is whether Parmenides' characterization of 'it' is meant to be an existential criterion. One theory, proposed by G.E.L. Owen, is that Parmenides' 'it' should be interpreted as the object of one's investigation. Per this interpretation, it can be argued that Gorgias is misrepresenting Parmenides' assertions and therefore fails to prove that nothing exists when he argues that nothing is 'it'.

Student Commentator: Hideaki Imai

Melissa Braaten

Zeno and Parmenides; The Paradox of Space

In the sixth century BC, the philosopher Parmenides divided all things into "what is" and "what is not." Surprisingly, intuitive concepts like space and time fell under "what is not," and so by definition were said to be unknowable. These claims by Parmenides about the unknowability of space were taken up by his student Zeno (490 BC), who came up with a famous series of paradoxes to show how space could not be logically understood. These paradoxes were really arguments to support Parmenides' claim that space and time do not absolutely exist.

Student Commentator: Joshua Balduf

Jordan Rogers

The Impossibility of Akrasia for the Socrates of Apology and Gorgias

Socrates' denial of the possibility of akratic action in Plato's Apology and Gorgias is articulated. Attention is called to an apparent inconsistency, which is then clarified. It is argued that Socrates' position is consistent. It is argued that Socrates' position is tenable to the extent that Socrates recognized degrees of intellectual grasping, and given Socrates' criterion for complete intellectual grasping. It is pointed out that any qualitative differences in the ways in which one could fail to meet Socrates' criterion say nothing against Socrates' claim that if one does meet that criterion, one will act in a certain way. It is claimed that such differences should not prevent Socrates from treating intellectual grasping as the single condition for having learned the craft of justice.

Student Commentator: Marc Johnson

DANCE PERFORMANCES
MacVittie College Union, Ballroom Stage
5:00 PM

Danielle Rinallo, Choreographer

Faculty Sponsor: Ruben Ornelas, School of the Arts

Geneseo Dance Ensemble – Independent Study in Choreography

“Morning Glory”

Performed by Carli Abiuso, Rachel Cudzilo, Lauren Pajer, Casey Rovinski, and Kaleigh Schwarz

“Morning Glory” is a result of an assignment intended to challenge the choreographer to use a different movement vocabulary than she was used to. A classical lyrical/modern piece. (2:50)

“Untitled”

Performed by Danielle Rinallo

The challenge proposed to the choreographer was to create a dance work incorporating prop(s) and set. This work is about life’s journey. (3:30)

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