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2007, 18th Annual JWP Conference

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CENTER FOR
NATURAL SCIENCES
SATURDAY
APRIL 14, 2007

<http://www2.iwu.edu/jwprc/>



The conference is named for explorer and geologist John Wesley Powell, a one-armed Civil War veteran and a founder of the National Geographic Society who joined Illinois Wesleyan University's faculty in 1865. He was the first U.S. professor to use field work to teach science. In 1867 Powell took Illinois Wesleyan students to Colorado's mountains, the first expedition of its kind in the history of American higher education. Later, Powell was the first director of the Smithsonian Institution's Bureau of Ethnology.

Eighteenth Annual

John Wesley Powell • IWU

Student Research Conference

Science Commons

Center for Natural Sciences

Saturday, April 14, 2007

8:30 a.m. – 6:00 p.m.

Official Program

ACKNOWLEDGEMENTS

The John Wesley Powell Research Conference Committee would like to acknowledge the contributions of several individuals.

This conference could not have been a success without the contributions of Pat Neustel in organizing many aspects of the conference and assembling and printing the program booklet.

The invaluable assistance provided by Mike Welsh and his staff at Sodexo Campus Services in setting up breakfast, luncheon and other refreshments is gratefully acknowledged.

The assistance provided by Patrick McLane of Information Technology in setting up computer equipment in all rooms is greatly appreciated.

John Wesley Powell Research Conference Committee:

- Linda French (Physics)
- Mike Seeborg (Economics)
- Mike Theune (English)
- Leah Nillas (Educational Studies)

SCHEDULE OF EVENTS

Saturday, April 14, 2007

8:30 a.m.	Continental Breakfast and Poster Setup	Science Commons
9:00 a.m.	Poster Session A	Science Commons
10:00 a.m.	Oral Presentations – <i>Session One</i> Sessions 1 through 7	CNS
11:00 a.m.	Oral Presentations – <i>Session Two</i> Sessions 8 through 13	CNS
12:15 p.m.	Luncheon	Main Lounge
1:15 p.m.	Keynote Address: Richard P. Binzel	Anderson Auditorium (C101)
2:35 p.m.	Poster Session B	Science Commons
4:00 p.m.	Senior Art Show and Critique	Merwin and Wakeley Galleries
5:15 p.m.	Performances of Music Student Compositions	Presser Hall (161)

KEYNOTE SPEAKER

**"EXPLORATION IN THE 21ST CENTURY:
NASA'S NEW HORIZONS MISSION TO PLUTO"**

Richard P. Binzel, Professor of Planetary Science
Department of Earth, Atmospheric, and Planetary Science
Massachusetts Institute of Technology

1:15 p.m. Anderson Auditorium (C101)

Richard P. Binzel, Professor of Planetary Science in the Department of Earth, Atmospheric, and Planetary Sciences at the Massachusetts Institute of Technology, is one of the world's leading scientists in the study of asteroids and Pluto. Binzel, who published his first scientific paper at the age of 15, completed his Bachelor's degree in physics at Macalester College (St. Paul, MN) and received his Ph.D. in astronomy from the University of Texas. His current research focuses on mapping the geology of the asteroid belt through telescopic observations revealing the compositions of nearly 2000 asteroids. He is credited with having established compelling evidence linking certain Earth-impacting meteorite types with specific asteroids. In 1999, Binzel devised the Torino Impact Hazard Scale, which assigns a number to the likelihood that a newly discovered asteroid will strike the Earth. Binzel has written two articles for Scientific American describing Pluto (June 1990) and the origin of asteroids (October 1991). Binzel was honored with a Presidential Young Investigator award from George H. Bush in 1990 and the Harold C. Urey Prize from the American Astronomical Society Division for Planetary Sciences in 1991. Currently he is a Science Team Member on the NASA New Horizons Mission to Pluto launched in 2006 and arriving in 2015. In recognition of his excellence in undergraduate teaching at MIT, Binzel was named a MacVicar Faculty Fellow in 1994. Asteroid number 2873 bears his name, an honor bestowed by the International Astronomical Union in recognition of his contributions to the field.

STUDENT PARTICIPANTS

Oral and Poster Presentations

Angela Agati	O7.2	Anne Fell	O6.3
Ogaga Akoroda	P1	Stefan Filip	P31
Erin Anderson	P2	Melissa Finch	P32
Matthew Anderson	P3	Revé Fisher	O2.1
Melissa Arof	P4	Sarah Flores	P33
Aaron Bailey	P5	Zach Freeman	P34
Allison Bannerman	P6	Erik Frost	P35
Megan Baranowski	P8	Erin Garibaldi	P36
Jordan Bartle	P9	Matthew Goergen	O9.2
Shannon Baumer	P12	Peter W. Gray	O1.2
Brian Baxter	Music	Rachel Green	P37
Patrick Beary	O13.1	Andrew Hall	P38
Alaina Bianchi	P13	Brandin Heidbreder	O9.1
Brandy Blackwell	P14	Grace Hollander	P39
Alex Boecher	O8.2	Zachary Hooper	O10.1
Craig Brauer	O12.1	Katherine Houser	P40
Christina Broholm	P15	Matthew G. Huddle	P41
Bonnie Brunkalla	O4.1	Stacy Hynes	P42
Benjamin Burry	O9.3	Eric Paoli Infanzón	O10.1
Megan Byrne	P16	Rob Inzinga	P43
Sarah Campbell	P17	Kelly Irvin	P44
Adam Cannon	P18	Brian Jbara	O7.3
Michelle M. Carrillo	P19	Benjamin Johnson	Music
Steven Cherney	P20	Ashley Kappmeyer	P45
Amelia Ciskey	P21	Leo Kelly	P46
Sarah J. Collins	P22	James F. Klopfleisch	Music
Devin Conley	O13.3	Katherine Klowden	P47
Michael Conte	P23	Melissa Koeppen	P48
Erin Cox	O11.3	Kristen Kopf	P49
Harley Culbertson	P24	Katie Korder	P50
Camille DeLisi	O10.3	Lauren Koteles	P51
Heather Deutsch	P25	Amy Kraus	P52
Laura Eisenmenger	P26	Todd Kumler	O7.1
Justin Ernat	P28	Joshua Lacey	P54
Toritseju Eshedagho	P3	Sarah Lewis	P53
Catherine Espel	P27	Lauren Little	P55
Nicholas Ettema	P29	Jason M. Manuel	O8.1
Kelly Feder	P30	Milos Martinov	O3.1

Continued.....

STUDENT PARTICIPANTS

Oral and Poster Presentations

Biniv Maskay	P56	Marisa Van Osedale	O6.1
Alison Mayer	P48	Michael Vasta	O4.2
Stevie Miller	P16	Jaclyn M. Verticchio	P80
Ryan Misek	P42	Bridget Wall	P3, P82
Karrin Musich	P57	Brianna Welch	O1.1
Justin Myer	P58	Rebecca Welzenbach	O5.1
Genevieve Nehrt	P59	Jacqueline Wickham	P81
Shannon O'Rourke	O6.2	Rebecca Wiersema	P4
Bukola Olaosebikan	P60	Sarah Wirth	P57
Oluwakemi Onajin	P61	Monica Wojtyna	O13.2
Mark Opal	P62	Amanda Zang	O2.2
Laura Peters	P63	Kristin Zavislak	O4.3
Karen Petersen	P64	Kristen Zomparelli	O5.2, P37
Jill Raabe	P52		
Aditya Rajgarhia	O12.2		
Jennifer Rambo	P65		
Kathryn Rinder	P66		
Jamie Rogers	P67		
Lauren Rosasco	P68		
Nicholas Rossi	P69		
Sarah Rueth	P42		
Angela Rumsey	P70		
Kelly Samartino	P71		
Kelly Sanderson	P72		
Kyle Schnitzenbaumer	P73		
Kathryn Sentman	O2.3		
Rachel Shulman	O11.2		
Amy Slott	P74		
Rachel Slough	O1.3		
Jason Somogyi	P75		
Matthew Spafford	P7		
Michael St. Aubin	P76		
Janna Stickler	O5.3		
Amanda Stortz	O11.1		
Brett Strand	O3.3		
Kate Swearingen	P77		
Kendall Tasche	P10		
Melissa Tisoncik	P78		
Thomas Traynor	O8.2		
Miranda Utzinger	P79		
Dora Valkanova	O3.2		

**BFA SENIOR CRITIQUE HONORS
SCHOOL OF ART
Saturday, April 14, 2007, 4:00 p.m., Merwin and Wakeley Galleries**

Student Presenters:

Matt Martin

Melissa Keiser

Julia Stroud

Refreshments will be served

MUSIC COMPOSITION STUDENT PRESENTATIONS

**Saturday, April 14
5:15 p.m.
School of Music 161**

People Movement (2006)

Brian Baxter '07

Amanda Fuerst, flute
Kaeli Matthews, bassoon
Dave Cramer, percussion
Anna Carlson, violin
Kristin Siegfried, viola
Evan Lowery, cello

Brian Baxter, conductor

Gacela for a Dark Death (2006) (text: Federico García Lorca) Ben Johnson '07
for guitar and electroacoustic playback

Ben Johnson, guitar

from *The Funeral Service and Burial of Peter Grimes*
Tribute to Peter Grimes (2006)

James Klopfleisch '07

James Hornor, baritone
Luke Gullickson, Paul Caracciolo, piano 1
Josh Ziemann, Shabazz, Ranney, piano 2

Music Presentation

PEOPLE MOVEMENT

Brian Baxter and David Vayo*
School of Music, Illinois Wesleyan University

Composer,s Note: People Movement was written for the second session of the 2006 Interlochen Composer Institute. The piece derives its motives and rhythms from the sounds of public and private transportation in Chicago, IL. The opening repeating motive in the bassoon which serves as a rhythmic base for the work represents a group of motorcycle riders revving their motorcycles while sitting idle in a parking lot. The rhythm of the motorcycles was fascinating to me and it had in fact originally interested me while on a trip to Minnesota when I was in downtown St. Paul.

All of the other material in this piece is derived from sounds heard from Metra Trains as well as from the CTA trains in Chicago. At some instances the melodies are meant to represent people on or off the trains responding to and interacting with others on the train as well as train personnel. People Movement is meant to invoke a sensation of movement but also of stillness; as well as a sensation of the destination but also of home. This piece is a brief reflection on the sounds of transportation in its effort to move people around our communities.

Music Presentation

GACELA FOR A DARK DEATH

Benjamin Johnson and David Vayo*
School of Music, Illinois Wesleyan University

Gacela for a Dark Death is 5'50" work for Guitar and Electro-acoustic playback. The poetry read in the CD playback is based on Federico Garcia Lorca's Poem with the same title. The electro-acoustic track consists of digital manipulations of recorded sounds of glass and bells. Also, the recording of the voice reading the poetry is manipulated to help reflect the dreamlike nature of the text. The guitar part utilizes extended playing techniques and evokes new sounds. The piece, overall, feels haunting and somewhat meditative.

Music Presentation

TRIBUTE TO PETER GRIMES

James E. Klopfleisch and David Vayo*
School of Music, Illinois Wesleyan University

"Tribute to Peter Grimes" is a piece for Baritone voice and two pianos. It comes from a larger piece entitled "The Funeral Service and Burial of Peter Grimes". This piece is an exploration of the possibilities inherent in the use of extramusical structures in music. In this case, that structure is the traditional Anglican funeral service. "Tribute to Peter Grimes" functions as the Eulogy section of the funeral. It consists of a simple, folk-like melody line over a piano part ever increasing in complexity. The use of Characters from the Benjamin Britten's opera "Peter Grimes" also serves to heighten the piece on a symbolic level.

ORAL PRESENTATIONS - SESSION 1
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E108)
MODERATOR: RACHEL SHULMAN

- 1.1 Brianna Welch
Hispanic Studies
- 1.2 Peter Gray
Hispanic Studies and Theatre
- 1.3 Rachel Slough
Hispanic Studies

ORAL PRESENTATIONS - SESSION 2
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E101)
MODERATOR: TASHA GASTON-BELL

- 2.1 Revé Fisher
Psychology
- 2.2 Amanda Zang
Psychology
- 2.3 Kathryn Sentman
Psychology

ORAL PRESENTATIONS - SESSION 3
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (C101)
MODERATOR: CHELSEA SCHAFFER

- 3.1 Milos Martinov
Political Science
- 3.2 Dora Valkanova
Political Science
- 3.3 Brett Strand
Political Science

ORAL PRESENTATIONS - SESSION 4
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E102)
MODERATOR: ANNE WILKINSON

- 4.1 Bonnie Brunkalla
Greek and Roman Studies
- 4.2 Michael Vasta
Greek and Roman Studies
- 4.3 Kristin Zavislak
Greek and Roman Studies

ORAL PRESENTATIONS - SESSION 5
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (C102)
MODERATOR: VALERIE HIGGINS

- 5.1 Rebecca Welzenbach
English
- 5.2 Kristen Zomparelli
English
- 5.3 Janna Stickler
English

ORAL PRESENTATIONS - SESSION 6
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E105)
MODERATOR: PATRICK BEARY

- 6.1 Marisa Van Osdale
International Studies
- 6.2 Shannon O'Rourke
International Studies
- 6.3 Anne Fell
French and International Studies

ORAL PRESENTATIONS - SESSION 7
10:00 – 11:00
CENTER FOR NATURAL SCIENCES (E103)
MODERATOR: KUNEAY GARG

- 7.1 Todd Kumler
 Economics
- 7.2 Angela Agati
 Economics
- 7.3 Brian Jbara
 Economics

ORAL PRESENTATIONS - SESSION 8
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E108)
MODERATOR: NICK TIMME

- 8.1 Jason Manuel
 Physics
- 8.2 Thomas Traynor & Alex Boecher
 Physics

ORAL PRESENTATIONS - SESSION 9
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E103)
MODERATOR: VLADISLAV SAKARSKI

- 9.1 Brandin Heidbreder
 Economics
- 9.2 Matthew Goergen
 Economics
- 9.3 Benjamin Burry
 Economics

ORAL PRESENTATIONS - SESSION 10
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E105)
MODERATOR: KRISTINE MADIGAN

- 10.1 Zachary Hooper
Business Administration
- 10.2 Eric Paoli Infanzón
Sociology
- 10.3 Camille DeLisi
Sociology and Anthropology

ORAL PRESENTATIONS - SESSION 11
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E101)
MODERATOR: MIKE VASTA

- 11.1 Amanda Stortz
Greek and Roman Studies
- 11.2 Rachel Shulman
History
- 11.3 Erin Cox
Hispanic Studies

ORAL PRESENTATIONS - SESSION 12
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (E102)
MODERATOR: REBECCA CARLTON

- 12.1 Craig Brauer
Biology
- 12.2 Aditya Rajgarhia
Computer Science

ORAL PRESENTATIONS - SESSION 13
11:00 – 12:00 noon
CENTER FOR NATURAL SCIENCES (C101)
MODERATOR: ANNE FELL

- 13.1 Patrick Beary
International Studies
- 13.2 Monica Wojtyna
International Studies
- 13.3 Devin Conley
Modern and Classical Languages and Literatures

Presentations are 10-15 minutes in length. If time permits, there will be a question-and-answer period for all presenters following the final presentation.

Oral Presentation O1.1

**FOR THEIR SAKE: CERVICAL CANCER AND THE ATTITUDES
SURROUNDING WOMEN'S HEALTH**

Brianna Welch and César Valverde*

Hispanic Studies Department, Illinois Wesleyan University

The Pan American Health Organization (PAHO) declared cervical cancer, and its viral origin, to be one of the most serious illnesses that affect women today. Ninety percent of cervical cancer cases are from the human papillomavirus (HPV), which discriminately affects women from disadvantaged, low-income backgrounds who have less access to medical care. Incidence rates are especially high in the developing world: the incidence and mortality rates for cervical cancer in Mexico, Central America, and South America are approximately three times higher than those observed in American women (Datos, ACS). Hispanic women in the United States are just as vulnerable; they are two times more likely to experience cervical cancer than white, non-Hispanic women. The best way to diminish the impact of HPV and cervical cancer is prevention, by screening more women with the highly effective Pap smear procedure. As of June 2006, the CDC has approved a HPV vaccine for women and girls aged 9 - 26 that was successful in clinical trials, potentially eliminating HPV and cervical cancer, but still highly controversial.

This investigation compares quantitative and qualitative attitudes towards women's health in Hispanic women in the United States and in Costa Rica. Studies with regard to women's attitudes towards health indicated the major obstacles with regard to Hispanic women's access to health care, citing especially the language barrier and the lack of resources, not just economic but also informational. Higher success rates of preventative screenings and early detection of cancer were noted in communities that offered free health care services and outreach to the Spanish-speaking community, disseminating information and dispelling myths surrounding clinical practice and disease. Costa Rica is prime example of health reform that focused on accommodating the rural community, and has done so with a rather high degree of success since the 1980s. They have achieved a balance, focusing government funding on health (more so than private expenditure) on promoting primary care, health education, and training health assistants. If cervical cancer is going to be prevented, women must be informed about the illness, the risk, and the benefits of early detection. In short, they must be empowered to make the right decisions for the sake of their health and for the sake of society.

Oral Presentation O1.2

**"IDENTITIES IN CRISIS": BEHIND-THE-SCENES OF THE DOCUMENTARY FILM
*LORCA AND THE TELLURIC IDENTITY***

Peter W. Gray and Sandra Lindberg*

Theatre and Hispanic Studies Departments, Illinois Wesleyan University

In May 2006, sponsored jointly by students, faculty and administration of Illinois Wesleyan University, Peter Gray traveled to Spain to investigate (and document on video) the cultural background and artistic development of one of the country's most distinguished poets, Federico Garcia Lorca. Later that year, Gray shared the findings of his research with a faculty director, design team and cast of student performers at the University's School of Theatre Arts, to aid in their preparation for the November presentation of Lorca's famous tragedy, *Blood Wedding*.

Lorca and the Telluric Identity, the documentary film which resulted from Gray's research and footage shot abroad, was first shown to the public in IWU's Beckman Auditorium directly preceding select performances of *Blood Wedding* on McPherson Stage. Five months later, Gray now reflects on the most shocking aspects of his first-ever experience with research for documentary film, and how he discovered that the word "identity" continues to be a cause for suspicion and fear in post-totalitarian Spain today.

Oral Presentation O1.3

**TRAVELLING THROUGH DISENCHANTMENT: AN ANALYSIS OF
JOURNEYS IN THE SOUTHERN SEAS**

Rachel Slough and Carmela Ferradns*
Hispanic Studies Department, Illinois Wesleyan University

Detective fiction, as a form of popular literature, is a particularly insightful genre for examining the changes in society and culture after dictatorship regimes. As popular fiction with fewer canonical guidelines, members of all social classes read it, which suggests that it may reflect the sentiments of a greater population. According to conventions of detective literature, the protagonist detective takes a series of journeys in search of clues. These journeys are literal, but also reflect Spain's metaphorical journey away from the confining dictatorship to new freedoms. However, these journeys, despite the expected optimism, ultimately reflect the disenchantment and struggle of the transition years. In my research, I examine the journeys and alluded attempted escapes taken by the characters in the novel *The Southern Seas* (*Los mares del sur*) by Manuel Vzquez Montalbn. Through my work, I explain the way this novel reflects the historical memory of this era through travel-metaphorical and literal.

Oral Presentation O2.1

TO REVEAL OR NOT TO REVEAL: HOW DISCLOSURE OF A SPEECH OR MENTAL DISORDER AFFECTS IMPRESSION FORMATION AND EMPLOYABILITY

Revé Fisher and Linda Kunce*

Psychology Department, Illinois Wesleyan University

The purpose of this study was to examine the impact that disclosure of a speech disorder (i.e., stuttering) or a mental disorder (i.e., bipolar disorder) has on impression formation and employability. Participants viewed photographs and heard recordings of an individual applying for a university work-study job. They saw one of six scenarios which manipulated the type of disorder (speech or mental) and level of disclosure (none, visually implicit, or verbally explicit). The participants then rated the personal characteristics of the applicant and gave their own affective reactions and hiring recommendations. The disorder strongly affected the participants' view of the applicant's personal characteristics as well as the type of jobs that the applicant appeared to be capable of doing. Furthermore, disclosure of the disorder differentially affected the manner in which participants viewed the applicant's personal characteristics, the way that the participant felt towards the individual, and the applicant's employability: disclosure of an overt, speech disorder was looked upon more favorably than disclosure of a covert, mental disorder. The results may be helpful for those who have speech or mental disorders who are trying to decide whether or not to disclose them to those in their daily lives.

Oral Presentation O2.2

SATIATION, HABITUATION, AND ELASTICITY: AN ECONOMIC ANALYSIS

Amanda Zang and James Dougan*

Psychology Department, Illinois Wesleyan University

Response rates typically change systematically within operant conditioning sessions. Proposed explanations for this phenomenon include habituation and satiation. The present study investigated these explanations. Six Sprague-Dawley rats were exposed to a series of variable interval (VI) schedules. Each schedule consisted of a baseline, same pre-feed, and different pre-feed condition. During the same pre-feed, the rats received the same food as was earned during the session, whereas in the different pre-feed, the rats received a food that differed from that earned during the session. A larger decrease in responding during a same food pre-feed condition would support habituation as the explanation. As predicted, there were greater decreases in responding in the same pre-feed conditions. These effects were seen at the higher VI schedules. The results support habituation theory and replicate earlier results from our lab. This research has implications for both habituation and satiation theories as well as eating disorders.

Oral Presentation O2.3

THE EFFECT OF MOOD ON IMPLICIT LEARNING

Kathryn Sentman and Jean Pretz*

Psychology Department, Illinois Wesleyan University

This study investigated the relationship between mood, personality, and implicit learning, or the gaining of knowledge without conscious awareness. Previous research has suggested that positive mood enhances heuristic judgments and a broad span of attention, while negative mood enhances analytic judgments and a narrow span of attention (e.g., Isen et al., 1985; Park & Banaji, 2003; Rowe, Hirsh, & Anderson, 2007). Thus, we predicted that a positive mood would enhance implicit learning, while a negative mood would depress it. Additionally, because intuition relies on non-conscious processing, we expected that participants with an intuitive personality would learn more implicitly than those with a non-intuitive personality. Using affective photographs, 94 participants were induced with a positive, neutral, or negative mood. Implicit learning was measured using the Artificial Grammar (AG) and Serial Reaction Time (SRT) tasks, while personality was measured using the Myers-Briggs Type Indicator (MBTI) and the Rational-Experiential Inventory (REI). Contrary to our hypotheses, findings suggest that mood has no significant effect on SRT performance, while negative mood increases AG performance. Additionally, analytical personality correlates positively with AG performance, but no significant correlations are found between personality and SRT performance. One possible explanation is that the AG task, but not the SRT task, induces analytical processing and encourages a hypothesis-testing approach which benefits learning.

Oral Presentation O3.1

**THE CRUCIAL INTERSECTION: TOWARDS A NEW DIRECTION IN THE STUDY OF
NATIONALISM, GENDER AND REPRODUCTIVE CONTROL**

Milos Martinov and Kathleen Montgomery*
Political Science Department, Illinois Wesleyan University

This study investigates the impact that the crucial intersection of ethno-nationalist and “birth crisis” discourses has on the restrictiveness of reproductive policy. It is grounded in the literature on gender and nationalism, which posits control over reproduction as an essential part of the ethno-nationalist ethos. However, this study also critiques and extends this literature by providing an empirical test for a more systematic four-fold theoretical model. For this purpose, sixteen countries are selected from post-socialist Eastern Europe as cases (specifically because of this region’s amenity to “most similar” comparative designs). Each case is scored for levels of nationalism and “birth crisis” discourses, and then placed in a four-cell table with the following categories: “Low Nationalism/Low Birth Crisis”; “Low Nationalism/High Birth Crisis”; “High Nationalism/Low Birth Crisis”; and “High Nationalism/High Birth Crisis”.

It is hypothesized that states exhibiting high levels of both ethno-nationalist and “birth crisis” discourses, will have the most restrictive reproductive policies. A composite score was developed in order to rank countries according to the extremity of their policy on reproduction. Overall, the study found that the crucial intersection of high levels of nationalism and “birth crisis” discourses does co-occur with controlling reproductive policies.

Oral Presentation O3.2

**COMPARISON OF ATTITUDES TOWARDS ABORTION BETWEEN POST-COMMUNIST
AND POST-INDUSTRIAL COUNTRIES**

Dora Valkanova and Kathleen Montgomery*
Political Science Department, Illinois Wesleyan University

This paper seeks to examine the distribution and correlates of attitudes towards abortion between post-industrial and post-communist countries. It starts out by explaining the relevance and significance of the present study in the introduction section. It then summarizes existing literature on abortion attitudes in post-industrial democracies and moves to outline conceptual problems of applying Western methodology within an Eastern European context. The hypotheses derived from the review of literature are then tested in a regression model that aims to examine and juxtapose the effects of abortion correlates in six post-industrial democracies and six post-communist countries. Results indicate that the correlates of abortion in post-industrial democracies are not the same as those in post-communist countries. Attitudes towards gender and religion have a different effect in post-communist and post-industrial countries. Attitudes towards sexuality are related to abortion attitudes in post-industrial countries but not in post-communist countries. The paper provides a brief discussion of the conclusions that can be drawn and avenues for future research.

Oral Presentation O3.1

**THE CRUCIAL INTERSECTION: TOWARDS A NEW DIRECTION IN THE STUDY OF
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Milos Martinov and Kathleen Montgomery*
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Oral Presentation O3.3

**ANCIENT BONDS, CONTEMPORARY POWERS: INVESTIGATING THE CAUSES OF
CENTER/PERIPHERY CONFLICT IN THE RUSSIAN FEDERATION**

Brett Strand and Kathleen Montgomery*
Political Science Department, Illinois Wesleyan University

What are the real causes of conflict between the federal regions and central authority in the Russian Federation? Why is it that some regions are compelled to act assertively towards Moscow, while others are not? These questions are relevant for any actor concerned with Russian affairs; moreover, they represent a critical debate for those who hope to bring aid to Russia's struggling regional populations. This research furthers the debate through a test of the two major schools of ethno-federal thought: primordialism and bargaining theory. The study (1) identifies relevant variables, (2) constructs indices to represent each of the theories, and (3) tests those indices for correlation with regional aggression.

This research shows that characteristics suggested by both primordialism and bargaining theory exert influence on regional aggression; however, it also finds that bargaining theory more accurately explains the behavior of Russian regions. In the end, this study concludes that ethnic differences, per se, do not lead to center/periphery conflict in the Russian Federation.

Oral Presentation O4.1

**TRANSITIONS IN FEMALE PORTRAITURE: FROM THE DOMUS TO
THE PUBLIC SPHERE**

Bonnie Brunkalla and Jason Moralee*

Greek and Roman Studies Department, Illinois Wesleyan University

Throughout history in the Roman Empire, Roman art, especially sculpture and coinage, was used to convey messages and symbolically represent ideals within the Empire. The artwork of each time period reflects the values of society at that specific point in time, including the socially acceptable role and place of women, particularly noble women. While some noble women were quite influential in the political arena, the portraiture that appears places them in the role that was acceptable during their lifetimes. By looking specifically at the portraiture of the empresses Livia, Agrippina the Younger, and Domitia, the observer can recognize the changing role of women, especially women in power, in society. This evolution of a woman's place takes the acceptable role of women from the domus, or household, into the public sphere.

Oral Presentation O4.2

THE PRINCEPS AND THE QUEEN: THE ARRIVAL OF JULIA BERENICE IN ROME

Michael Vasta and Jason Moralee*

Greek and Roman Studies Department, Illinois Wesleyan University

The Jewish queen Julia Berenice began an affair with the future Roman emperor Titus in the summer of AD 67. She was important to the formation of the Flavian dynasty not just as Titus' mistress, but as a powerful political ally and financial backer. However, after Vespasian, Titus' father, emerged as the ultimate victor of the civil war of 69, Berenice did not join her lover Titus in Rome when he returned to the city in 71. Instead, she did not arrive at Rome until the year 75. The ancient sources tell us that "Berenice was at the very height of her power" [and] dwelt in the palace, cohabitating with Titus. She expected to marry him and was already behaving in every respect as if she were his wife.

This paper will determine why it was necessary for Berenice to wait until 75 to join her lover Titus in Rome, and how, four years after she last saw Titus, she could be "at the very height of her power." It contends that until this time, the Flavian regime was not secure enough to permit Berenice's arrival, and the inevitable backlash from those who viewed Titus and Berenice as a new Antony and Cleopatra.

The regime faced serious opposition from the senator and philosopher Helvidius Priscus. He openly challenged Vespasian, and in particular, the succession of Titus. Titus' extravagant lifestyle and his relationship with Berenice provided ample ammunition for Helvidius, assertions that the best man should be emperor, and Titus was clearly not "the best man." Vespasian tolerated this criticism for a time, however, Helvidius was finally exiled and then put to death, certainly before 75, when Berenice arrived. The sources do not directly state it, but there is substantial evidence to suggest that Titus was the one responsible for the execution of Helvidius Priscus.

When the Senate did not respond with hostility to Helvidius' execution, Titus must have felt that the Flavian regime was secure enough to ask for permission to bring Berenice to Rome. Vespasian allowed it, and the queen joined her lover in the Imperial Palace.

Oral Presentation O4.3

THE MINOAN THALASSOCRACY

Kristin Zavislak and Nancy Sultan*

Greek and Roman Studies Department, Illinois Wesleyan University

A topic of frequent debate among archaeologists and historians of ancient Aegean civilizations is what accounted for the social, economic, and political changes that necessitated the development of palatial complexes on Crete in the MMIB period (c. 1900 BCE) and whether or not these changes are attributed to a politically controlled sea-trading empire centered at Knossos, a so-called “Minoan Thalassocracy.” Following the scholarly theories of Colin Renfrew and Sinclair Hood, I believe that there was indeed a state-run trading monopoly controlled by the Minoans that was able to thrive and dominate until its sudden demise in 1365 BCE through a combination of commercial imperialism and military dominance. Through evidence of strategically located, Minoan-run colonies along major trade routes and clear Minoan influence on architecture and pottery styles at these locations, I will prove that the Minoans traveled throughout the Aegean and had a profound impact upon the material, social, and political culture of every civilization they came into contact with. Also, with evidence of Minoan-manufactured weaponry, the architecture of the palace/ redistribution centers, and frescoes, I will show how the Minoans were not necessarily as peaceful as historians and archaeologists assume them to be.

Oral Presentation O5.1

**RAIDING THE ARCHIVE: A STUDY IN THE VENERATION AND VISIBILITY
OF THE LINDISFARNE GOSPELS**

Rebecca Welzenbach and Daniel Terkla*
English Department, Illinois Wesleyan University

The Lindisfarne Gospels, an eighth-century English manuscript, has been revered throughout history for its unique illuminations and its translation of the four gospels from Latin into Old English. This manuscript has changed hands many times, surviving Viking attacks, the Norman Conquest, and the tragic biblioclasm associated with the English Reformation. This study examines the way that three owners of the manuscript have understood and negotiated the balance between protecting the book while sharing its treasures with pilgrims and scholars. I explore the methods and motives of the eighth-century monastic community that produced the Gospels, the Elizabethan librarian Sir Robert Cotton, and London's British Library. While advances in growing collections, impressive buildings, and digital technology suggest increased accessibility to rare books like this one, I argue that scholars today enshrine the Lindisfarne Gospels almost the same way that medieval clergy did.

Oral Presentation O5.2

**SATIRIZING THE SILENCE: A CRITIQUE OF THE PATRIARCHY'S DESTRUCTION OF
THE FEMALE CHARACTER IN *MUCH ADO ABOUT NOTHING***

Kristen Zomparelli and Mary Ann Bushman*
English Department, Illinois Wesleyan University

The purpose of my Research Honors project is to analyze women's roles in *Much Ado About Nothing* using both semiotic and feminist theory. The play enacts the disastrous effects of placing strict limitations on women and endowing men with unquestionable authority simply because of their gender. *Much Ado* presents two possible responses for women in a patriarchy: Hero's silent, compliant tongue and Beatrice's rebellious, outspoken tongue. Despite Hero's compliance with the patriarchy, the men read her as a text and assign meaning based on their interpretations, which leads to their slander of her spotless reputation. Although Beatrice is given a more privileged tongue, her voice is ignored due to her gender. I argue that the ending of the play is left intentionally unresolved to spark social debate on problems with the patriarchy: no matter what her response to patriarchal rule, a woman will always be silenced and overruled.

Oral Presentation O5.3

**A THREAT TO MALE ORDER: WOMEN WHO GO BEYOND THEIR PLACE
IN MEDIEVAL SOCIETY**

Janna Stickler and Daniel Terkla*
English Department, Illinois Wesleyan University

The subjection of women is a common theme throughout much of history, including the Middle Ages. This topic carries over into many literary works of the time period, such as Heldris de Cornuälle's *Silence: A Thirteenth-Century Romance* and Chrétien de Troyes' *Erec and Enide*. The female protagonists in these two romances differ from most historical women of their time in that they are both able to briefly exit their feminine spheres and defy men's expectations of them. As some scholars argue, these unconventional behaviors highlight the strengths that Silence and Enide possess. Other scholars assert that because these women are talented, Silence and Enide challenge the dominant male values that characterize medieval life. Therefore, although Silence and Enide are first viewed in a positive light, through their words and actions they become threats to patriarchal values; it is ultimately necessary, then, that Silence and Enide be returned to the submissive, silent roles to which they, as women, are typically confined.

Oral Presentation O6.1

HIV/AIDS IN ZAMBIA: A GENDERED EPIDEMIC

Marisa Van Osdale and Michael Weis*

International Studies Department, Illinois Wesleyan University

Zambia has one of the worst HIV prevalence rates in sub-Saharan Africa. About 55% of those living with HIV/AIDS are women. This presentation will examine the vulnerability of young married women, female AIDS orphans, and sex workers and the inadequate progress made by prevention programs run by Zambian and international organizations. This paper also examines the role that increased advocacy, improved power of local NGOs, and full debt cancellation could have on the effectiveness of prevention initiatives. I suggest that annual debt cancellation, especially, will improve Zambian health expenditures. Zambia has strong traditional roots that can facilitate a change in HIV/AIDS prevalence rates, but only if the international community allows the Zambian government to focus funds on its people where they are most needed.

Oral Presentation O6.2

CHINESE AND US ENGAGEMENT IN AFRICA: A DEVELOPMENT PERSPECTIVE

Shannon O'Rourke and Michael Weis*

International Studies Department, Illinois Wesleyan University

Long considered the de facto dominion of the West, Africa has recently seen a new foreign actor from the East, in the land of the rising sun. China's rapid industrial development and recent resource scarcity have led it to Africa, touting a foreign policy of non-interference. In contrast, the United States has its eyes set on Africa for both national security concerns as well as oil reserves while promoting human rights in the region. This paper will look specifically at the official intentions of both countries, including, business venture development, current impact on development, and potential outcomes for the two very different approaches. It will address whether the approach to future development in Africa should focus on either social or economic conditions or whether a combination of both is best. The findings of this research indicate that China's strategy is a strong short-term method but ultimately will fail while the US's official strategy is a better long-term approach. A more successful strategy would be one that is inclusive and incorporates both human rights and infrastructure building as well as the creation of jobs for African citizens, which are ultimately the building blocks to development that Africa needs to establish while maintaining existing foreign relationships.

Oral Presentation O6.3

**TRADE LIBERALIZATION AND ENVIRONMENTAL JUSTICE IN THE
IVORIAN COCOA INDUSTRY**

Anne Fell and Scott Sheridan*

French and International Studies Departments, Illinois Wesleyan University

The economic liberalization of the Ivorian cocoa industry has played a significant role in the deterioration of Ivorian economic and social stability, degrading the lives of the millions of Ivorian citizens dependent on cocoa for their livelihoods. Having increased environmental threats, worsened poverty and child labor, and aggravated ethnic tensions in the Ivory Coast, Neoliberal economic policies fail to adequately address the environmental and humanitarian costs of cocoa production. Foreign economic interests have thus continued to take precedent over environmental justice goals as the valuation of the Ivory Coast remains centered on the economic exploitation of its resources.

Oral Presentation O7.1

**THE IMPACT OF FOREIGN AID ON DEVELOPMENT AND AGGREGATE WELFARE
IN DEVELOPING COUNTRIES**

Todd Kumler and Ilaria Ossella-Durbal*
Economics Department, Illinois Wesleyan University

Across the globe, over one billion people live in extreme poverty, struggling to survive on less than one U.S. dollar per day. Persistently low levels of development in developing countries has recently caught the attention of many politicians and social observers, prompting many to call on developed countries and multinational organizations to increase development assistance to these impoverished countries. However, would increased foreign aid effectively raise human development in developing countries? While many studies have analyzed the impact of development aid on economic growth in developing countries, fewer have addressed the impact of development aid on more comprehensive measures of development. Analyzing data on 88 developing countries from 1980 to 2000, this study employs two-stage least squares regression to evaluate the impact of foreign aid on the Human Development Index (HDI), a composite index of development, while controlling for the level of pro-poor public expenditure within a developing country. In addition, an interaction term between foreign aid and a measure of macroeconomic policies will be utilized to determine if economic policy has an impact on the effectiveness of development assistance.

Oral Presentation O7.2

THE EFFECTS OF INTERNATIONAL DIVERSIFICATION ON PORTFOLIO RISK

Angela Agati and Michael Seeborg*
Economics Department, Illinois Wesleyan University

With the growing global economy, understanding international stock market correlations has become a vital instrument for investors wishing to diversify their portfolios on a global basis. For investors to have effective international portfolio diversification it is important to determine the countries whose stock prices move together, those whose stock prices move in opposite directions and those whose stock prices are unrelated all together. In order to analyze the impact of stock market correlations, this paper will focus on stock market indices in the U.S., Shanghai and the European Union. According to theory, maintaining portfolios primarily in highly positively correlated markets allows for unnecessary portfolio risk due to the presence of diversifiable risk in the portfolio. Through linear regression, results have shown that markets for the most part move together, especially in times of high volatility. Therefore investors should be wary of international diversification.

Oral Presentation O7.3

THE EFFECTS OF POLLUTION ON THE ENVIRONMENTAL KUZNETS CURVE

Brian Jbara and Robert Leekley*

Economics Department, Illinois Wesleyan University

In recent years, increased economic development, globalization, and liberalization of international trade have been linked by economists and environmental scholars as possible causes for specific trends in pollution. One of the most studied and controversial hypotheses surrounding this topic is the Environmental Kuznets Curve Hypothesis (EKC), which states that a country's pollution concentrations rise with development and industrialization up to a certain point, after which it falls again as the country uses its increased affluence to reduce pollution concentrations again. If true, plotting pollution concentrations against income per capita will yield an inverted U—the EKC. Another controversy is the manner in which the more affluent countries reduce their pollution concentrations. Two possibilities are likely: One is that the more developed countries adopt cleaner technologies to produce their goods. The other less hopeful possibility is that developed countries simply specialize more and more in the production of products of cleaner industries, while the less affluent or developing countries take over production of products from dirtier industries. This suggests that the cleaner environment in developed countries comes at the expense of a dirtier environment in developing countries. This is the essence of the Pollution Haven Hypothesis (PHH).

This paper looks for evidence of an EKC across 36 countries over time. It also looks for evidence as to whether these changes over time are consistent with the PHH. Sulfur Dioxide (SO₂) is used as a measure of pollution concentrations for the EKC, while five dirty manufacturing industries are used to measure the level of dirty production in developed and developing countries. Linear regression models and descriptive statistics are utilized in finding and explaining results. Overall, there is very little evidence to suggest that an EKC exists. The signs of the coefficients are correct, which means that the EKC seems to have an inverted U shape. However, the results are not significant, and therefore no conclusions can be made. There is no evidence to support the PHH. This suggests that developing countries may not be increasing their production of products of dirtier industries after all, and therefore are not as likely to be “pollution havens” in the world economy.

Oral Presentation O8.1

OPTICAL TRAP ARRAYS WITH ENHANCED UNIFORMITY

Jason M. Manuel (1), John Butler(2), Ivan Smalyukh(2), Ryan J. Kershner(3)
and Gabriel C. Spalding*

Physics Department, Illinois Wesleyan University
Department of Materials Science & Engineering, University of Illinois-Urbana
IBM Almaden Research Center, San Jose, California

Optical traps are concentrations of light that restrict the movement of physical objects by way of conservation of momentum. Acoustic-optic deflectors (AODs) can steer light far more rapidly than conventional mirrors, which are limited by the inertia of the material involved. AODs work by sending controlled sound waves through a transparent medium: one can set up a periodic variation in the optical index of refraction, thereby causing light transmitted through the material to be deflected to a degree that is set by the frequency of the acoustic wave. We have written software to provide control, calibration, and analysis for AOD-generated arrays of optical traps. This software compensates for changes in efficiency and in beam aberration as the beam is deflected, modifying the laser power so as to normalize trap strengths.

Oral Presentation O8.2

CONSTRUCTION OF AN ELECTRONIC SPECKLE PATTERN INTERFEROMETER

Thomas Traynor and Alex Boecher and Andrew Morrison*

Physics Department, Illinois Wesleyan University

Electronic speckle pattern interferometry is used to look at the operating deflection shapes of vibrating objects. An effort has been made to make this technology more accessible by using lower cost components and perfecting current methodology. It has been shown that by using an inexpensive firewire camera and a 100mW laser that interference patterns of a center mounted circular steel plate can be observed through a range of drive amplitudes and frequencies. The images obtained have been improved using an image averaging technique implemented through LabView. Image quality has also been improved by implementing a piezo driven mirror that was simply constructed at IWU. Also discussed will be other techniques for improving image quality.

Oral Presentation O9.1

DOES IT PAY TO BE A HIGH SCHOOL ATHLETE?

Brandin Heidbreder and Michael Seeborg*
Economics Department, Illinois Wesleyan University

This paper is designed to investigate the effect participation in high school athletics has on a student's labor market success. Conventional wisdom suggests that participation provides athletes with valuable human capital skills which may not be attainable to those who chose not to participate in athletics. Through regression analysis of the National Longitudinal Survey of Youth, evidence is found in support of the idea that participation in high school athletics yields a wage premium for both men and women. In addition to this wage premium, participants in athletics also receive a greater amount of educational attainment on average. Additional regressions show that a sizeable portion of the wage premium to athletes is a result of educational attainment and indirect characteristics which can be attributed to human capital skills specific to athletic participation.

Oral Presentation O9.2

**THE CAUSES OF WAGE DIFFERENTIALS BETWEEN IMMIGRANT AND
NATIVE PHYSICIANS IN THE UNITED STATES**

Matthew Goergen and Michael Seeborg*
Economics Department, Illinois Wesleyan University

Although the immigration of foreign physicians has increased in recent years, their wages are less than the wages of native-born physicians. Considering the mass influx of foreign physicians into the U.S., it is important to examine what factors are responsible for this wage disparity. Studies of this nature, with the focus particularly on physicians, are in short supply. Previous literature regarding the economic performance of immigrants, as well as the sources of wage differentials between them and natives as a whole, however, is rather abundant. My study expands the previous literature by employing a human capital theoretical framework to shed light on why this wage discrepancy between immigrant and native physicians exists. Using a 5% sample of the 2000 IPUMS data set, a regression is run that explores the effects of country of origin and age at immigration on earnings. The findings of this study indicate that early arrival immigrant physicians, as well as immigrants from regions most similar to the U.S., earn wages comparable to those of the natives due to increased U.S.-specific human capital.

Oral Presentation O9.3

MEASURING THE IMPACT OF URBAN AMENITIES ON METROPOLITAN WAGES

Benjamin Burry and Margaret Chapman*
Economics Department, Illinois Wesleyan University

This paper seeks to quantify the impacts of climate, crime, population density, and travel time on median hourly wage in urban areas using the hedonic approach. In accordance with the theory of utility equalization across urban areas, worker skill level, job composition, and intercity cost of living differences are held constant. This study's sample size consists of thirty-eight metropolitan statistical areas in the continental U.S. (omitting New Orleans) with a population greater than five hundred thousand. Results support a significant impact of urban amenities on wages.

Oral Presentation O10.1

AN EMPIRICAL INVESTIGATION OF POISON PILL USE IN THE BANKING INDUSTRY

Zachary Hooper and David Marvin*

Business Administration Department, Illinois Wesleyan University

This study examines the use of poison pill plans, which are defensive measures adopted by a business to thwart a hostile takeover. Contrary to the arguments that a poison pill plan serves to entrench a management team, this research demonstrates that it modestly improves operating performance the year after the pill is adopted by a bank. There are two hypotheses explaining poison pill adoptions: (1) Managerial Entrenchment and (2) Shareholder Interest. This study specifically examined these hypotheses in the banking industry between 1986 and 2003. Performance improvements support the Shareholder Interest hypothesis and were noted in publicly held banks that adopted poison pills as compared with a peer group that did not adopt defensive strategies. The results of this research contradict the popularly held belief that the adoption of a poison pill plan has a significant negative effect on a firm's operating performance.

Oral Presentation O10.2

**ARRESTED DEVELOPMENT: UNDERSTANDING THE IDENTITY
CONSTRUCTION OF QUEER STUDENTS OF COLOR AT A SMALL
LIBERAL ARTS UNIVERSITY IN THE MIDWEST**

Eric Paoli Infanzón and Venus Evans-Winters*
Sociology Department, Illinois Wesleyan University

College is often a critical time for the maturation of one's identity; raising awareness of the influences of race, class, gender, and sexual identity. However, there is a persistent tension in the identity construction of queer students of color on campus that is related to the essentialization and politics of identity at IWU. This is present in the interaction of students of multiple marginalized identities with their peers and faculty who reject the students, multi-faceted identities in favor of a single essentialized identity. The campus climate pressures students to adopt an essentialized identity while discouraging the open construction of a more complex identity. The finding of this study suggest a need to address this rejection which is institutionalized via curriculum and University programs that promote and privilege normativity over the experiences of individuals of multiple marginalized identities.

Oral Presentation O10.3

**THE ROLE OF THE UNITED NATIONS AND EAST AFRICAN GOVERNMENTS
IN VOLUNTARY REPATRIATION**

Camille DeLisi and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

During the 1994 genocide in Rwanda, 1.8 million people fled the country to seek refuge in neighboring countries such as Uganda. Aid and relief to refugees still living in the camps is provided by non-governmental and international organizations, which work together to facilitate the return of Rwandans to their home country. This presentation, based on data collected through participant observation and interviews in Rwandan refugee camps in Uganda, investigates the mechanisms through which refugee rights are attended to or neglected during repatriation. The research suggests that many refugees do not want to return to Rwanda, and their fears and needs are overlooked by the institutions that claim to be helping them. Through the work of these institutions voluntary repatriation becomes a forced process. This research offers an important analysis of the current status of Rwandan refugees and of the people and organizations who are placed in their charge.

Oral Presentation O11.1

MYSTERY ON THE MOUNTAIN

Amanda Stortz and Nancy Sultan*

Greek and Roman Studies Department, Illinois Wesleyan University

Peak sanctuaries are outdoor holy places located on the peaks of mountains. Prevalent during the Pre- and Proto-Palatial periods of Bronze Age Crete, they probably served a religious ritual function. We know these sites were visited, and we know the visitors left objects. But who were these people? What were they leaving and why? The most notable feature of the divine in the peak sanctuaries was its absence. Among thousands of adorant figurines, no image of the deity exists. Since no written language provides a text to aid this investigation into the religion, I will use artifacts from the sites and artwork depicting these sites as my starting point. I will examine offering bearers and their offerings at peak sanctuaries using ceramics, painting, and seals along with archeological information already available. I will study at the Zakros stone rhyton, complemented by the Gypsades rhyton, the Ayia Triadha sarcophagus, and the Mistress of the Mountain sealing from Knossos. I will argue that religious rituals were directed to a nurturing goddess to ease communal concerns over death and the subsequent renewal of life and the continued welfare of the human and his environment.

Oral Presentation O11.2

**SUMPTUARY LEGISLATION AND THE FABRIC CONSTRUCTION OF
NATIONAL IDENTITY IN EARLY MODERN ENGLAND**

Rachel Shulman and Michael Young*
History Department, Illinois Wesleyan University

This paper researches the ways in which clothing and fashion in sixteenth-century England were controlled by the government as a means to enforce the established social order. Tudor sumptuary laws were a key aspect of the monarchy's attempt to regulate consumption, particularly as it relates to outward displays of status and wealth. This project also explores the semiotics of clothing and the cultural implications of dress and manners. Fashion was an indicator of social position, and as social mobility in England increased under the Tudor and Stuart monarchs, the crown and the nobility responded with regulatory restrictions in their attempt to retain power and authority. Overall, early modern Englishmen defined English identity as expressed through cultural mores but especially through apparel in contrast to their perceptions of other nations, thus establishing a system of status identification based upon clothing.

Oral Presentation O11.3

**"MYTH, MONSTER, AND MEMORY- *PAN'S LABYRINTH* AND THE LEGACY OF
THE SPANISH CIVIL WAR"**

Erin Cox and Carmela Ferradns*

Hispanic Studies Department, Illinois Wesleyan University

Evil stepparents, child-eating monsters, and a magically dangerous maze- all in 1940's fascist Spain? In *Pan's Labyrinth* (*El laberinto del fauno*), the young Ofelia's quest to find her "real" father amidst the aftermath of the Spanish Civil War leads her to cross the lines that separate fantasy and reality. The backdrop of her story - the last stand of defeated republicans against the triumphant fascist forces - is presented as a noble battle of ideology brought to mythic proportions. This presentation will examine how the film asks us to question not only how we remember historical events (as fact, fiction, or myth), but the political and social implications of doing so.

Oral Presentation O12.1

NEW SPECIES AND NEW DIRECTIONS IN TARDIGRADE RESEARCH

Craig Brauer and Elizabeth Balser*

Biology Department, Illinois Wesleyan University

Tardigrades, also known as water bears, are small (~1mm in length) microorganisms that inhabit mosses and lichens as well as aquatic habitats. Tardigrades are a sister group to the phylum Arthropoda in Ecdysozoa, sharing multiple characteristics with the arthropods including the ability to molt and the possession of excretory malpighian tubules. Tardigrades, like roundworms and rotifers, have the ability to enter a quiescent state known as cryptobiosis in which the tardigrade replaces body fluids with sugar and can remain in this state for hundreds of years until favorable conditions arise again. Recent results have been successful in classifying an undocumented species of Milnesium based on morphological characteristics including size, claw patterns, and buccal structure. As an extension of describing this new species, the developmental pattern of the new species was compared to that of the known species Milnesium tardigradum. Due to inability to maintain single juvenile tardigrades for an extended period in culture, direct comparison is not possible at this time. However, differences in reproductive characteristics were noted. This study also highlights the inherent problems of culturing these animals and provides new directions and insight into relatively unknown areas of tardigrade research. These directions include the effect of temperature, ion concentration, molting stage, and length of time in an active state on entering cryptobiosis as well as fertility.

Oral Presentation O12.2

RAPID OBJECT DETECTION USING INDEPENDENT COMPONENT ANALYSIS

Aditya Rajgarhia and Weiyu Zhu*

Computer Science Department, Illinois Wesleyan University

Face detection is the task of determining the locations and sizes of human faces in arbitrary digital images. A commonly used approach is based on the techniques of boosting and cascading, which allows for real-time face detection. However, systems based on boosted cascades have been shown to suffer from low detection rates in the later stages of the cascade. In this paper we introduce a novel variation of the boosting process that uses features extracted by Independent Component Analysis (ICA), which is a statistical technique that reveals the hidden factors that underlie sets of random variables or signals. The information describing a face may be contained in both linear as well as high-order dependencies among the image pixels. These high-order dependencies can be captured effectively by representation in ICA space. Moreover, it has been argued that the metric induced by ICA is superior to other methods in the sense that it may provide a representation that is more robust to the effect of noise such as variations in lightening. We propose that features extracted from such a representation may be boosted better in the later stages of the cascade, thus leading to improved detection rates while maintaining comparable speed. We present the results of our face detector, as well as comparisons with existing systems.

Oral Presentation O13.1

GLOBALIZATION & GANGS: THE EVOLUTION OF CENTRAL AMERICAN GANGS

Patrick Beary and Irving Epstein*

International Studies Department, Illinois Wesleyan University

Japanese anime, Hollywood films, Chinese food and vicious machete attacks by a deadly street gang in Washington DC are all examples of global cultural flows and the hybridization of culture around the world. Using the example of the evolution of Central American street gangs, I will examine how cultural ideas and practices travel and evolve within processes of globalization. The youth gang Mara Salvatrucha (MS-13), originated out of El Salvadoran refugee communities in Los Angeles into the emerging LA gang scene in the late 1980s. By the 1990s, media attention, including Hollywood movies, MTV and gangsta' rap, had glorified the LA gang life and culture worldwide. This combined with strengthened deportation policies that sent many MS-13 members back to their home countries at the same time resulted in an evolution and explosion of gang culture in Central America to a scale of size and violence to unprecedented levels for anywhere in the world. The vicious gang and its ever-evolving culture has since spread back to the United States in over 32 states and is prevalent in at least five other countries, prompting the FBI to label it as one of the most dangerous threats to regional stability and security today.

Oral Presentation O13.2

KASIA HEADS WEST: CHANGING FAMILY VALUES IN POST-COMMUNIST POLAND

Monica Wojtyna and Marina Balina*

International Studies Department, Illinois Wesleyan University

For this research paper I will be focusing on the East to West job migration that is occurring in the recently expanded European Union (EU). Defining the family unit, both the nuclear and extended family, will be the starting point of the analyses of changes that has occurred during EU membership. The starting point of this analysis will be through changing dynamics of Western job migration during Poland's communist times up to the present. The changing policies have created new types of migration both to the US and to Western Europe. The opening of borders both after the fall of communism and after EU membership are cause for some of the biggest changes. The typical labor migration after the fall of communism was for longer, defined periods to the West. Currently, the typical labor migration seems to be for shorter periods with frequent re-occurrences throughout the year. This in effect, has created a new situation back home for the family. Especially after the EU, an increasing amount of families are consistently left broken by one or both parents leaving to seek employment.

Poland has been a nation rooted in Roman Catholicism with strong family values with very negative views towards divorce. This new age of migration is having a drastic effect on those family values. Children find themselves being raised in a single parent situation and divorce rates have been at a constant increase. Younger couples struggling to support a new life together often find the only option is live apart in order to find work, which puts a strain on any marriage. These steady changes are largely due to the trends in migration and are changing the cultural values of the country.

Oral Presentation O13.3

**THROUGH THE FRENCH LENS: TOLSTOY'S *ANNA KARENINA* AND THE
CLASH OF TWO CULTURES**

Devin Conley and Marina Balina*
MCLL Department, Illinois Wesleyan University

In his portraiture of Russian aristocratic society in his novel *Anna Karenina* (1877), Leo Tolstoy illustrates the world of two cultures, Russian and French. While Russian remains the language of intimacy and emotions, French represents the ritualized life of ignorance and falsehood. This linguistic anomaly differentiated aristocrats from the peasants, the “Russians”, and presented a dual identity for Russians of the upper crust, in particular reshaping the concept of sincerity of Tolstoy’s characters. Using French and Russian as separate readers, I intend to distinguish between where the languages and cultures intersect, interface, or contradict in order to form a moral comparison for human behavior of the novels’ protagonists.

POSTER SESSION A

9:00 - 10:00 a.m.

Odd-Numbered Posters

POSTER SESSION B

2:35 – 3:35 p.m.

Even-Numbered Posters

Note: Student's name is underlined, faculty advisor designated with *

During each poster session the author will be present to discuss her or his research with conference attendees, and answer questions.

Please remove your posters at 4:00 p.m.

Poster Presentation P1

OPTICAL SORTING

Ogaga Akoroda and Gabriel Spalding*

Physics Department, Illinois Wesleyan University

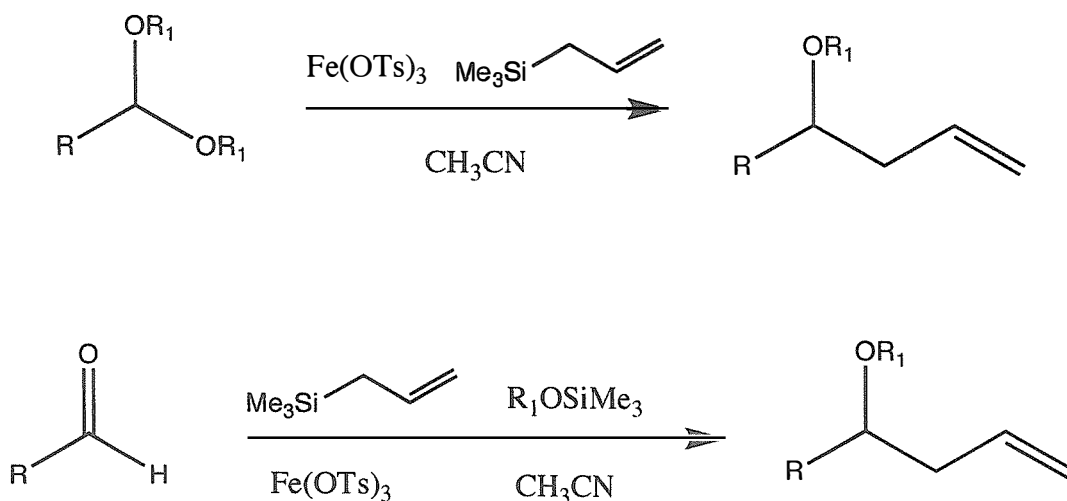
This research involves optical forces, using an optical lattice to sort particulate matter (e.g., separating stem cells from normal cells) entrained in microfluidic streams, and attempting to analyze the results to the highest degree possible, with the hope that means of increasing the efficiency of sorting at very high throughputs can be identified. Some optical sorting methods that have been proposed utilize active intervention for sorting micrometer-scale particulate matter suspended in microfluidic channels. However, the passive approach being studied may, ultimately, offer greater potential for high throughput, and would be of particular use on the input stages of an integrated lab-on-a-chip system.

Poster Presentation P2, P7

Iron(III) Tosylate Catalyzed Conversion of Acetals and Aldehydes to Homoallyl Ethers

Erin D. Anderson, Matthew J. Spafford and Ram S. Mohan*
Chemistry Department, Illinois Wesleyan University

Iron(III) *p*-toluenesulfonate (tosylate) is an efficient catalyst for the allylation of acetals to form homoallyl ethers. The one-pot conversion of an aldehyde to a homoallyl ether was also found to be catalyzed by the iron(III) tosylate. Iron(III) tosylate is an inexpensive, relatively non toxic catalyst that is especially suited for large-scale reactions. The results of this study will be presented.



Poster Presentation P3

**ORGANOCHLORINE PESTICIDE CONTAMINATION AND ITS POTENTIAL EFFECTS ON
EGGSHELL THICKNESS AND COLORATION IN DICKCISSELS (*SPIZA AMERICANA*)**

Matthew Anderson, Bridget Wall, Toritseju Eshedagho and
Given Harper,* Jeffrey Frick* and Brian Peer*
Biology and Chemistry Departments, Illinois Wesleyan University
Biology Department, Western Illinois University

Dickcissels (*Spiza americana*), which are small seed-eating birds in the family Cardinalidae, breed in the grasslands of the Midwestern United States and winter mostly in Venezuela. Farmers in Venezuela intentionally spray dickcissel flocks with pesticides in an attempt to kill them when they feed in rice fields. Dr. Brian Peer, a graduate of Illinois Wesleyan University and a professor and avian ecologist at Western Illinois University, noticed that the eggs of some dickcissels seemed to break easily when handled. Previous studies have shown that organochlorine (OC) pesticide contaminants (e.g., DDT) have significantly reduced eggshell thickness in eagles and falcons. The purpose of this study is to determine if OC contamination contributes to a decrease in dickcissel eggshell thickness. In addition, we are trying to determine if OC pesticides may also influence dickcissel eggshell coloration, which may be used by males to assess female quality, and thus determine the amount of care they will provide to the resulting offspring.

Dickcissel eggs were collected in Illinois and Iowa during the summers of 2004, 2005, and 2006 with the necessary permits. Egg collection has minimal impact on dickcissel populations. The presence of sixteen OC compounds was tested for using gas chromatography and eggshell thickness was measured using a thickness indicator. Eleven OC compounds were present in dickcissel eggs and p,p,-DDE was the most frequently detected compound [present in 17/112 eggs; minimum ^ maximum levels: 0 ^ 418 parts per billion (ppb)]. There was a significant negative relationship between eggshell thickness and levels of total OC compounds ($F_{1,74} = 4.638$, $p = 0.035$; minimum ^ maximum levels: 0 ^ 2,349 ppb). These results suggest that OC pesticide contamination may play a role in decreased reproductive success of dickcissel and declines in their populations. Digital photographs were taken under fluorescent lighting and the hue, saturation, and brightness of eggshell segments are currently being analyzed using Adobe Photoshop.

Poster Presentation P4

**A LOOK AT MENTORING EFFECTS ON NOVICE TEACHERS' CLASSROOM
MANAGEMENT METHODS: A CASE STUDY**

Melissa Arof and Rebecca Wiersema and Venus Evans-Winters*
Educational Studies Department, Illinois Wesleyan University

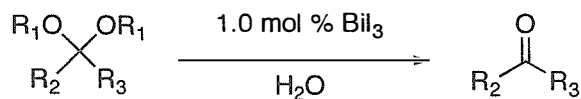
The purpose of this poster presentation is to explain the influence of veteran teachers' mentoring on novice teachers through observations of classroom management methods. We believe this research is important because of the debate surrounding the necessity of mentoring novice teachers and the controversy over successful classroom management methods. This research is significant because a correlation between mentoring and successful classroom management methods could lead to mentoring programs for novice teachers. The implementation of these programs could assist novice teachers' development of effective classroom management strategies. To look at the effects of mentoring relationships, we have focused on classroom observations, reflections on our own experiences, and interviews with veteran and novice teachers. Previous research on this topic shows that mentoring is beneficial for novice teachers. Preliminary findings of our research show that mentoring between veteran and novice teachers leads to similar and successful classroom management methods. This research is applicable for novice teachers, veteran teachers, and school administration.

Poster Presentation P5, P10

**GREEN CHEMISTRY USING BISMUTH COMPOUNDS
BISMUTH IODIDE CATALYZED DEPROTECTION OF
ACETALS AND KETALS IN WATER**

Aaron D. Bailey, Kendall Tasche and Ram S. Mohan*
Chemistry Department, Illinois Wesleyan University

The deprotection of acetals and ketals is an important transformation in organic synthesis and has received considerable attention. Although several methods have been developed for this purpose, many of these utilize reagents that are corrosive, toxic and difficult to handle. Bismuth compounds are remarkably non-toxic and quite easy to handle and hence quite attractive as *green reagents*. Herein we report the chemoselective deprotection of acetals and ketals using catalytic amounts of bismuth(III) iodide in water.



Poster Presentation P6

**EXPLAINING COMPLIANCE WITH INTERNATIONAL AGREEMENTS
AGAINST THE TRAFFICKING OF CHILDREN**

Allison Bannerman and Kathleen Montgomery*
Political Science Department, Illinois Wesleyan University

The sexual exploitation of children is detrimental to the physical and emotional health and development of the children and undermines the development and growth of nations. Since 1989 the international community has taken serious legislative steps to attempt to eliminate child sex trafficking. However, despite nearly universal ratification of international conventions on the topic, the sexual exploitation of children continues. The literature that addresses regime compliance suggests two general explanations for the lack of follow-through among signatory countries: a lack of capacity (both political and economic) and cultural proximity. This paper will examine the validity of each of these categories through analysis of data across sixty-seven countries drawn from diverse regions. This paper finds that political capacity, followed by economic capacity, better accounts for compliance with child sex trafficking conventions than measures of cultural proximity.

Poster Presentation P8

PHOTOLYSIS OF NITROUS ACID IN HEPTANE SOLVENT

Megan Baranowski and Timothy Rettich*

Chemistry Department, Illinois Wesleyan University

The reaction between volatile organic compounds (VOC) and radicals formed by solar radiation is thought to be the cause of photochemically induced air pollution. In an attempt to understand such reactions, nitrous acid dissolved in heptane was irradiated with UV radiation around 366 nm. At this wavelength, nitrous acid is known to produce hydroxyl radical, OH, a key component in air pollution. The heptane solvent, a model compound for VOC, serves as a radical scavenger. The photolysis reaction was monitored using UV-Vis spectroscopy. The resulting photolyzate was analyzed using gas chromatography, mass spectrometry and thin layer chromatography. Preliminary results indicate at least four distinct organic products, whose ongoing characterization is reported.

Poster Presentation P9

ART AND ARTISTS IN THE EVOLVING WORLD OF BODY MODIFICATION

Jordan Bartle and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

This poster presentation draws attention to tattoo artistry by focusing on the artists themselves and the ever-changing world of body modification through the use of photographs and ethnographic interviews. Through these ethnographic data-collection techniques, the research consultant brings to light the training, motives, styles, and goals of tattoo artists in Bloomington-Normal and beyond. This research captures tattoo artists at a time when tattooing has become an increasingly accepted visual expression in American society and having a tattoo is mainstream. The primary objective of this poster is to inspire understanding and dialogue about the role of body modification in our changing society.

Poster Presentation P12

BEHAVIOR ANALYSIS IN A MODEL OF PRE-CLINICAL PARKINSONISM

Shannon H. Baumer and Paul A. Garriss*

Biology Department, Illinois Wesleyan University
and Illinois State University

This project was designed to evaluate a novel behavioral measurement of preclinical dopamine (DA) loss in a rat model of Parkinson's Disease (PD). Freely moving lesions, cannula implantation, rat handling, and behavior analyses were combined to understand the relationship between behavioral deficits and the degree of DA loss in the rat striatum.

A neurotoxin, 6-Hydroxydopamine (6-OHDA) was injected into the substantia nigra pars compacta (SNc) of the rat brain to induce PD-like symptoms. Utilizing the cylinder test, the rat's behavior was measured pre-surgery, post-surgery, and post-lesion to quantify behavioral deficits resulting from 6-OHDA. Prior to lesioning, cannula surgery was performed to differentiate between surgical and lesioning effects. Results confirmed a direct, positive correlation between the degree of neurotoxin injected and the behavioral deficit experienced.

Poster Presentation P13

**MATH MATTERS: BENEFITS AND STRATEGIES FOR INCORPORATING
MATHEMATICS INTO A HISTORY CLASSROOM**

Alaina Bianchi and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

Students must have experiences which require them to make connections between mathematics and other disciplines. They will see the power and utility that mathematics brings to expressing, understanding and solving problems in diverse settings beyond the classroom (ISBE, 1997). This research study investigated the importance of interdisciplinary education in mathematics with focus on the benefits and effective methods for incorporating mathematics into a history classroom. Qualitative data was gathered using questionnaires that were administered to high school math and history teachers. Results showed that teachers associate a variety of benefits with interdisciplinary education, specifically the de-isolation of mathematics and helping students connect mathematics with other subject areas. This study aims to inform high school mathematics and history teachers' practice and provide them with methods and strategies in teaching interdisciplinary lessons.

Poster Presentation P14

**DISEQUILIBRIUM OF E5 AND E7 MRNA IN HPV DUE TO INTEGRATION
OR A RESULT OF FORMALIN FIXATION?:
USING BOVINE PAPILLOMA VIRUS AS A POSITIVE CONTROL**

Brandy Blackwell and Dr. Lancaster*
Biology Department, Illinois Wesleyan University
and Wayne State University

Certain types of the human papilloma virus (HPV) have been implicated as the causative agent of cervical cancer. Cervical cancer is the second most common cancer among women worldwide and the third leading cancer related deaths in women. The clinical test commonly known as the Pap-smear can help detect infection, but is not widely available in lesser developed countries. The goal of this study is to use Bovine Papilloma Virus (BPV) to mimic HPV in the same procedure used for the previous study. That study showed that E5 and E7 mRNA levels were unequal due to the integration of HPV into the human genome. The goal of the present study is show the equivalence of E5 and E7 mRNAs in a non-integrated genome, in essence a positive control experiment for the previous study. The results of this study were largely inconclusive although the findings suggest the expected lack of integration. Further work is needed to develop an efficient primer to conclude this study.

Poster Presentation P15

**SOCIAL SIBLINGS: BIRTH ORDER AND SOCIAL INTERACTIONS
AMONG PRIMARY SCHOOL STUDENTS**

Christina Broholm and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

The affect birth order has on children's social interactions is being explored on many different fronts. Research done by many scientists such as Perlin and Grater (1984) has been helpful in pointing out the characteristics of first, middle, and last born children. The following study focuses on the effect of birth order on primary grade students' social development. Forty-three kindergarten through second grade students from an elementary school in Central Illinois were surveyed, observed, and interviewed to gain more information about their personality and feelings using eight categories of social behavior: activity, talkativeness, communication with peers, emotional control, imagination, anxiety around peers, maturity among peers, and rule keeping. I was able to gauge social ability in relation to their ordinal birth position. This study aims to broaden teachers, and the general public's knowledge on this particular topic in addition to understanding participation in social interactions at school.

Poster Presentation P16

**THE SECOND STEP PROGRAM: ARE KINDERGARTENERS CLIMBING
TOWARDS SOCIAL SUCCESS?**

Megan Byrne, Stevie Miller, and Leah Nillas*
Educational Studies Department, Illinois Wesleyan University

The Second Step Program, a violence prevention program, teaches students to express their feelings and interact positively with others. According to studies, the Second Step Program can be linked to improvements in student behavior and decreased aggression (Frey, Bobbit Nolen, Van Schoiack Edstrom, Hirschstein, 2005).

In kindergarten, children enter a social setting daily where they are expected to interact with others. During this time, many students do not know how to properly behave and interact with others. This makes kindergarten an appropriate level to introduce children to proper social skills and problem solving strategies. The purpose of this study is to determine the effectiveness of the Second Step Program in teaching kindergarteners social interactions and behavior. Kindergarten students were observed in different school environments, and their teachers were interviewed. Research findings will allow teachers and administrators to determine whether the Second Step Program is valuable in teaching children social interactions and appropriate behavior.

Poster Presentation P17

**WORKING MOTHERHOOD: A STUDY ON THE RELATIONSHIP
BETWEEN THE POLICIES SURROUNDING CHILDBIRTH, WOMEN'S
ECONOMIC SECURITY AND GENDER EQUALITY**

Sarah Campbell and Jill Benderly*

International Studies and Political Science Departments, Illinois Wesleyan University
School of International Training, Balkans Program

This paper looks at the impact of patriarchal gender roles on various types of parental leaves and childcare, up to ages six, and on women's economic stability. It examines the impact of gender stereotypes, from historical, media, and social sources, on the gender division of work in the private sphere and how that contributes to which parent chooses to take the parental leave after childbirth. It acknowledges that the private sphere, domestic work and unpaid care work, is usually the responsibility of women; therefore the image of women and the salience of traditional stereotypes have a very important impact on the division of domestic tasks. It is specific to Croatia because of history, including war during the break-up of Yugoslavia and possible ascension into the European Union, and its history's impact on the development and entrenchment of traditional gender roles. The paper finds that for traditional gender roles to be pushed aside, men must be encouraged and allowed to participate in the domestic sphere, especially with childbirth, for paternity leaves to be used effectively. The public/private sphere balance for women should not be framed as an exclusive choice because it is not framed in this light for men - paternity and managerial positions do not involve a trade off.

Poster Presentation P18

NOMADS OF THE INTERSTATES: PORTRAIT OF THE AMERICAN TRUCKER

Adam Cannon and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

In order to meet the demands of an economy that thrives on consumerism, American truck drivers are burdened with the responsibility of delivering products quickly and efficiently. This responsibility ultimately compels them to live like nomads, who spend long exhausting hours on the road, and who do not return home for months at a time. Through photographs and ethnographic interviews, this poster presentation illustrates the rich culture that exists among American truckers, and furthermore highlights the tribulations of the trucker that stem from a nomadic existence. The research suggests that truck drivers are a severely underappreciated and misunderstood group of people, who are a necessary component of the nation's economy. The aim of this poster presentation is to generate cultural awareness and respect for these fascinating people, who exist on the margins of society.

Poster Presentation P19

AN OBSERVATIONAL STUDY OF THE SEXUAL BEHAVIOR OF SOMALI WILD ASSES

Michelle M. Carrillo and Brian Walter* and Cheryl Asa*
Biology Department, Illinois Wesleyan University
and Saint Louis Zoo

An observational study focusing on the sexual behavior of Somali Wild Asses, *Equus africanus somaliensis*, was conducted at the Saint Louis Zoo. The incentive for this study was the fact that there is little literature on the sexual behavior of these critically endangered wild asses. The objective was to focus on how sexual behaviors correlate with reproductive hormones. As is shown in behavioral studies of domesticated horses, hormones such as progesterone and LH influence the receptivity and subsequent sexual behaviors of female equids, as well as the males. To provide a baseline for this study, the asses were observed routinely throughout the week and hormone levels were monitored daily by fecal samples. It was concluded that those sexual behaviors which infer receptiveness towards mating correlated with peaks of progesterone levels of the female asses. In the future, conclusions made in this study can be used as a means of comparison to the sexual behaviors exhibited by other wild equids, such as the Grevy's Zebra, *Equus grevyi*, which ultimately could be useful in the preservation of both these endangered species.

Poster Presentation P20

CREATION OF STABLE PORPHOBILINOGEN SYNTHASE KNOCKOUTS IN E. COLI

Steven Cherney and David Bollivar*

Biology Department, Illinois Wesleyan University

Porphobilinogen synthase (PBGS) is the enzyme responsible for the first step in the biosynthesis of tetrapyrroles such as chlorophyll and porphyrin. Our goal is to create a stable porphobilinogen synthase (PBGS) knockout in *Escherichia coli*. *Escherichia coli* does not have a natural system to import heme, the end product of the biochemical pathway in this organism. Consequently we also must also have a stable heme uptake system. Using a strain we obtained from another laboratory that has a heme uptake protein from another bacterium *S. marcescens*, we used PCR products to knockout the PBGS gene, and isolate organisms that must uptake heme from their environment. The PBGS knockout strain is being created so that the genes for PBGS from other organisms can be introduced and studied in an in vivo system.

Presentation P21

POLICE SUB-CULTURE: ENDURING EMOTIONAL AND SOCIAL STRESS

Amelia Ciskey and Rebecca Gearhart*
Anthropology Department, Illinois Wesleyan University

This poster explores the sub-culture of police officers. It discusses the high-stress environment that characterizes police work and explores its impact on the personal and family life of police officers. The research data presented focuses on the lives of three police officers of varying age and experience on the force in Normal, Illinois, as discovered through ethnographic interviews and participant-observation, including three ride-alongs with on-duty officers. The research identifies characteristics and behaviors of police officers that distinguish them from society at large.

Poster Presentation P22

**BEYOND BILINGUAL: IDENTIFYING EFFECTIVE METHODS FOR
TEACHING FRENCH AS A THIRD LANGUAGE**

Sarah J. Collins and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

Despite limited studies on teaching French to third language learners, current research on language acquisition and cultural identity suggests that learning a new language is meaningful when it acknowledges the learners' prior understanding (Hancock, 2003; Mercado, 2002; Reeser, 2003; Rolstad, 1997). In this case, it is knowledge of other cultures and languages. The purpose of this study is to identify effective methods for teaching French to students who are bilingual in Spanish and English. The study was conducted at a high school in Chicago, Illinois, and participants included two French teachers and Spanish-speaking students studying French. Through surveys and interviews, the teachers and selected students were asked to discuss learning preferences, teaching methods, interest, motivation, and success in learning French. The findings of the study support the notion that French teachers who use alternative and relevant teaching methods are more effective in facing the challenge of a declining interest in French and the demands of a growing population of bilingual students.

Poster Presentation P23

**OPTIMIZATION OF RING-OPENING REACTIONS OF 4-SUBSTITUTED
OXAZOLIDINONES USING PRIMARY AND SECONDARY ALCOHOLS**

Michael Conte and Jeffrey Frick*

Chemistry Department, Illinois Wesleyan University

Oxazolidinones have been used as a new line of defense in the battle against bacterial infections such as MRSA (methicillin-resistant *Staphylococcus aureus*). This project has focused on optimizing the ring-opening reactions of 4-substituted oxazolidinones using a Lewis acid catalyst with primary and secondary alcohols. The results of this study will be presented.

Poster Presentation P24

WOMEN'S WAGES: THE EFFECTS OF MOTHERHOOD AND EDUCATION

Harley Culbertson and Michael Seeborg*
Economics Department, Illinois Wesleyan University

Determining how women's educational and fertility choices effect their earnings and whether they enter into a "traditional" job is extremely important in today's society where women are increasingly entering the labor market. Human Capital Theory suggests that women who receive more education and have fewer children earn more than women who have less education and more children. Using a sample of 3,500 women, a regression analysis is used to test whether education is directly related to earnings, and whether having children is indirectly related to earnings. In addition, the regression analysis tests whether there is an interaction effect between fertility and years of education determining income. The results of this study show that there is a direct correlation between education and earnings, and an indirect effect between fertility and earnings. Also, the results of the regression that include interaction terms show that women with college degrees, who decide to have children, pay a very large earnings penalty. These results suggest that there are severe implications for women when they are making the decision to have children or further their education, as well as for corporations that want to hire women.

Poster Presentation P25

HIV STIGMA REDUCTION: A COMMON GROUP IDENTITY PERSPECTIVE

Heather Deutsch and Natalie Smoak*

Psychology Department, Illinois Wesleyan University

The HIV/AIDS epidemic affects many individuals worldwide. Coupled with this epidemic is stigma levied against infected individuals. HIV stigma involves feelings of repulsion, discomfort, blaming, and sanctions. We combated HIV stigma by targeting emotional, motivational, and behavioral underpinnings in an intervention video. In this video, we examined two factors; first, we manipulated whether the intervention speaker shared a group membership (IWU affiliation) with the audience. Second, we manipulated the speaker's HIV status. We hypothesized that, when the speaker was affiliated with IWU and was HIV-positive, stigma would be reduced. Seventy-one IWU students watched the intervention video, and then we assessed participants, HIV-related implicit and explicit attitudes, group affiliation, and behavioral intentions. Results suggested that both speaker status and group identity were significant predictors of overall explicit stigma, particularly for the sanction and comfort subscales. Students, affiliation to IWU was also modified by the intervention as hypothesized. Based upon these results, the Common Ingroup Identity Model is a fruitful model for fostering HIV stigma reduction.

Poster Presentation P26

ECSTASY BEFORE, DURING, AND AFTER STRESS

Laura Eisenmenger and Elizabeth Balser*
Biology Department, Illinois Wesleyan University

MDMA or ecstasy has been shown to have adverse short- and long-term effects in humans, that include: anxiety, depression, panic disorder, cognitive dysfunction, and in some rare cases death (Peroutka et al., 1988; Kosten and Price, 1992; McCann et al., 1994). Given the growing prevalence of MDMA use in young adults, including women of child-bearing age, understanding the effects of MDMA exposure on the fetus is important. Little is known about the developmental effects of MDMA in humans, therefore neonatal animal models have been used to model MDMA exposure that is comparable to human second and third trimester brain development (Rodier, 1980; Morgane et al., 1992; Bayer et al., 1993; Rodier, 1994). Rats exposed to MDMA from postnatal day (P) 11 to 20, but not from P1 to P10 show dose-dependent deficiencies in spatial and path integration learning and memory in adulthood (Broening et al, 2001; Williams et al, 2004). Corticosterone is a steroid hormone secreted from the adrenal cortex often used to help regulate metabolism and stress responses. Corticosterone may induce the learning and memory deficits seen in rats exposed to MDMA, because MDMA exposure during this period increases corticosterone during a period of development when levels of corticosterone typically remain low. This is a developmental stage termed the stress hyporesponsive period (SHRP). The purpose of this study was to determine if MDMA given prior to or after the SHRP is ineffective at producing changes in cognitive function. In addition, the dose-dependent effects of the drug on cognitive impairments were investigated.

Poster Presentation P27

GROUP FORAGING WITH DESPOTIC COMPETITORS

Catherine Espel and James Dougan*

Psychology Department, Illinois Wesleyan University

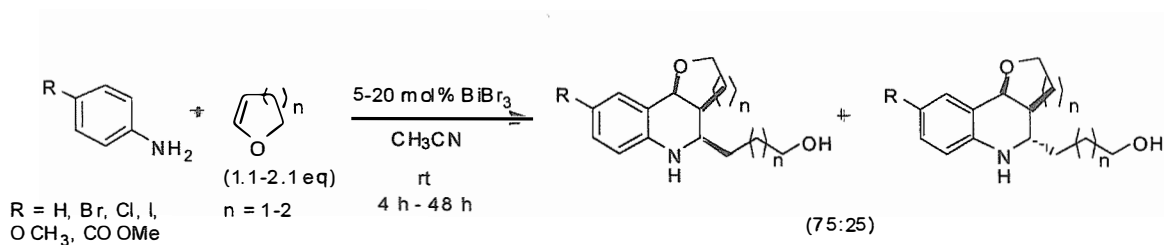
The generalized matching law, originally developed by behavioral psychologists, and the ideal free distribution, originally developed by ecologists, have a strong mathematical similarity. Each model predicts the relative distribution of behavior between two resource sources. The models differ because the matching law predicts the distribution of individual behavior while the ideal free distribution predicts the distribution of organisms among patches. The present experiments examined the effects of inter-organism competition when one of the competing animals is "despotic." Six rats participated in the study, which involved group foraging in a large open field apparatus. In the baseline phase, all rats were deprived to a moderate 90 percent of body weight. Dominance and "despotism" were then established by selecting the rat with the largest sternum and tarsus and establishing prior residence in the open field. A "weighted competition" version of the ideal free distribution suggests that the presence of a despotic rat should result in an altered distribution of animals in the patch. The results have implications for both the matching law and the ideal free distribution, and suggest that models including competitive weight may better describe the data.

Poster Presentation P28, P67

GREEN CHEMISTRY USING BISMUTH COMPOUNDS BISMUTH BROMIDE CATALYZED SYNTHESIS OF SUBSTITUTED QUINOLINES

Jamie L. Rogers, Justn J. Ernat, Herbie Yung and Ram S. Mohan*
Chemistrty Department, Illinois Wesleyan University

Substituted hexahydrofuro[3,2,c]quinolines are obtained in moderate to good yields via a bismuth bromide catalyzed coupling between substituted anilines and two equivalents of an enol ether (dihydrofuran and dihydropyran). The product is obtained as a 3:1 mixture of endo and exo isomers. Bismuth compounds are attractive as catalysts because of their remarkably low toxicity, low cost and ease of handling. The results of this study will be presented.



Poster Presentation P29

**NUTRIENT ACQUISITION BY A RESPIRATORY EPITHELIUM IN THE
SEA CUCUMBER, THYONELLA GEMMATA**

Nicholas Ettema and William Jaeckle*
Biology Department, Illinois Wesleyan University

Many sea cucumbers (phylum Echinodermata) exhibit arborescent respiratory structures which emerge from the digestive system and ascend into the body coelom. These “respiratory trees” are accepted as the primary site of respiratory gas exchange for these animals. However, several studies have suggested the respiratory trees are also involved in feeding. We investigated the potential role of the respiratory trees of *Thyonella gemmata* to remove dissolved organic matter from seawater. Specimens were incubated in seawater containing labeled proteins (1mg/mL) for times up to 24 hours and then the trees were removed. To assess the presence of the absorbed label, tissue samples were examined using light and fluorescence microscopy. In both whole mounts and tissue cross sections ($1\mu\text{m}$), the label was detected within the cells of the respiratory trees. Although there was variability in the presence of label among experimental animals, no equivalent label was detected in unexposed animals. The respiratory trees of *T. gemmata* appear to be involved in nutrient acquisition and may account for a significant amount of the total nutrient uptake.

Poster Presentation P30

**THE ROLE OF DIVERSE VPU PROTEINS IN HUMAN IMMUNODEFICIENCY VIRUS
TYPE 1 (HIV-1) VIRAL PARTICLE RELEASE**

Kelly Feder(1), Paul D. Bieniasz(2) and Stuart J. D. Neil*(2)

Biology Department, Illinois Wesleyan University

The Aaron Diamond Aids Research Center and Laboratory, The Rockefeller University

A constant battle is waged between host defenses and viral evasion of those defenses in the human immune system. One such interaction is between the retrovirus human immunodeficiency virus (HIV-1) and a cellular factor which tethers viral particles to the surface of infected cells, inhibiting viral particle release. Vpu, a small transmembrane protein encoded by HIV-1 and some simian immunodeficiency viruses (SIV), enhances viral particle release from infected cells, possibly by inhibition of that tethering factor. Here, we investigated the correlation of Vpu function and location of the virus within the host cell. First, we identified the particle release-enhancing-potential of Vpu proteins from different clades, or strains, of HIV-1 and SIV with naturally varying functional efficiency. Next, we examined the localization of these different Vpu protein within cellular membranes. Vpu has been proposed to localize to organelles including the endoplasmic reticulum, Golgi, and some endosomal compartments that are important in shuttling proteins to and from the cell surface. We fluorescently tagged three such endosomal compartments with red markers and our various Vpu proteins with green markers and examined colocalization. Our results suggest a link between early-endosomal localization and enhancement of release. Additionally, all Vpu proteins localized to the recycling endosome regardless of enhancement of release. These combined data suggest that Vpu may be trafficked through the recycling endosome and early endosome and that Vpu localization within these compartments may be required for Vpu-mediated virus particle release.

Poster Presentation P31

RISK MANAGEMENT THROUGH DERIVATIVES SECURITIZATION

Stefan Filip and Jin Park*

Business Administration Department, Illinois Wesleyan University

With the fluctuations in the financial markets reaching tens of billions of dollars in just one day, using complex financial instruments instead of typical insurance could be more effective and cheaper to finance high-severity and low frequency risk exposures. Insurance-linked derivatives such as catastrophe bonds and weather bonds have been used for some time in the United States and European Union. The risks that they cover vary from property catastrophes, weather, general liability, and extreme mortality risks. As the number of issuers for these securities increases and new over-the-counter (OTC) products appear on the secondary markets there is a growing need to understand how they should be priced and considered by law. I intend to analyze the methods of pricing as well as creating a model for a weather derivative for the Illinois corn production and test its impact based on past statistical data.

Poster Presentation P32

PSYCHOLOGICAL DISORDERS, EMPLOYMENT, AND DISCRIMINATION

Melissa Finch and Linda Kunce*

Psychology Department, Illinois Wesleyan University

People with psychological disorders experience stigma and discrimination, which can impact their ability to gain and maintain employment (Goldberg, Killeen, & O'Day, 2005). The purpose of this study was to examine the impact of disclosure of a severe mental disorder (bipolar disorder) on employability and person perception. In addition, the study assessed the impact of diversity education on hiring persons with severe mental disabilities. Participants listened to an interview of a student job applicant in one of three conditions (no disclosure, implicit disclosure, or explicit disclosure.) They rated the applicant on personal characteristics and likeability, as well as made employment recommendations. Next, participants read information about either mental disorders in the workplace (i.e. diversity education) or about work-study (i.e. control.) Finally, they re-evaluated the applicant on a variety of measures. We hypothesize that the level of disclosure will significantly affect impression formation, affective reactions, and employability. Further, we hypothesize that participants in the diversity education condition will display more tolerant attitudes than those in the control condition.

Poster Presentation P33

**THE EFFECT OF EXPERTISE AND STRATEGY ON PRACTICAL PROBLEM SOLVING
IN COLLEGE LIFE**

Sarah Flores and Jean Pretz*

Psychology Department, Illinois Wesleyan University

How can we be sure to make the best possible decisions in everyday life, especially in situations with limited time? Research by Tversky and Kahneman (1974) has suggested that analysis is the best strategy; whereas others (Dijksterhuis, 2004) have shown that intuition is better. Gigerenzer's (2004) research has shown that heuristics, mental shortcuts, can be adaptive. Klein (1998) has found that good decisions can be made in short amounts of time, particularly if one has expertise. The present study sought to investigate the effectiveness of decisions in the domain of college life made under a variety of conditions: use of analysis, use of holistic intuition, and the use of heuristics under time constraint. We also investigated the effect of expertise on the appropriateness of the strategy used. 274 undergraduates were split into three levels of expertise in college life: novice (first-year students), intermediate (sophomore students), and expert (junior and senior Resident Assistants and Greek Peer Counselors) and four strategy conditions (analysis, intuition, time constraint, and control). They rated solutions to problems they might encounter in everyday college life. We expected a direct positive effect of expertise on decision making. The effect of expertise was predicted to interact with the effect of strategy. Different levels of expertise were expected to benefit under different experimental conditions.

Poster Presentation P34

**RELATION OF PARENTAL INVOLVEMENT TO STUDENT INVOLVEMENT
AND ATTITUDES AT SCHOOL**

Zach Freeman and Venus Evans-Winters*

Educational Studies Department, Illinois Wesleyan University

The purpose of this poster presentation of a research study is to discuss and examine the relationship between parental involvement in schools and student involvement. The research took place in two different schools, in a 5th grade classroom and a 1st grade classroom. Data was derived from teachers, records and interviews with students. Our hypothesis is that students who have high parental involvement, based on teacher perceptions and data collected, will have higher student participation at school, particularly in the classroom setting. We also expect the students whose parents are more involved to have a better attitude toward school, determined by responses during interviews. Preliminary findings show that parental involvement positively affects student involvement and attitude. This research has implications for educators, administrators, parents, and student development.

Poster Presentation P35

IDENTIFICATION AND MIGRATION OF FUSED BM CELLS IN-VIVO

Erik Frost and Nicholas Zavazava*

Biology Department, Illinois Wesleyan University
and University of Iowa

Adult hematopoietic cells cannot be re-programmed into differentiating into another lineage except in very rare circumstances. The process is very inefficient and does not yield sufficient cell numbers for any meaningful application in therapies. However, it is possible that through fusion the necessary reprogramming of cells for therapeutic use can be accomplished. We hypothesized that transplanted BM will fuse with peripheral cells in vivo which could lead to regenerative capabilities and altered immogenicity of these cells. BM cells from a mouse transgenic for the expression of cre recombinase were isolated and then injected intravenously into two ROSA 26 mice that were transgenic for two loxP sites around a stop cassette in the coding region of a lacZ reporter gene (β-gal). In the event of fusion the cre recombinase will excise the floxed stop cassette allowing for expression of the reporter gene. We reasoned that if cells stained positive for this reporter gene then fusion must have occurred. One mouse was sacrificed at 7 days and the other was sacrificed at 21 days. Cells from the liver, spleen, and BM were isolated and stained for β-gal and flow cytometry was run. Results show between 10%-12% of cells stained positive for β-gal confirming that fusion has occurred. Other peripheral tissue was removed, frozen, and then slides were prepared using a cryostat. These slides were then fixed, stained for β-gal, and examined using light microscopy. Data shows positive staining cells in many peripheral tissues confirming that fusion has occurred. These newly generated fusion cells can now be isolated and their regenerative capabilities and immogenicity determined leading to possible clinical applications.

Poster Presentation P36

**AFRICAN STUDENTS' ADJUSTMENT TO LIFE IN THE U.S.: HARAKA, HARAKA
HAINA BARAKA (HURRYING, HURRYING, BRINGS NO BLESSINGS)**

Erin Garibaldi and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

This poster presentation highlights the use of photographs and ethnographic interviews to explore the issues African college students face as they adjust to life in the U.S., as well as to life at Illinois Wesleyan University. Through the photographs and personal accounts, the research consultants explain the difficulties they have experienced as well as the people, places, and things that have made their adjustment experiences easier. In light of the increasing number of International students on the IWU campus, this presentation is a timely examination of what can be done to make the transition to life in the U.S. easier for International students. The poster is designed to spark discussion about these issues among the IWU community as well as to motivate American students to do what they can to educate themselves about the personal experiences and patterns uncovered in the research.

Poster Presentation P37

**ANALYZING THE EFFECTS OF ABILITY GROUPING ON
STUDENTS' SELF-CONFIDENCE**

Kristen Zomparelli, Rachel Green and Venus Evans-Winters*
Educational Studies Department, Illinois Wesleyan University

The purpose of this poster presentation is to demonstrate the relationship between ability grouping and students' level of self-confidence. The research looked at both ability-grouped and mixed ability level classrooms to determine which environment promotes the highest levels of self-confidence for the students. Specifically, the research involves surveying students and interviewing experienced teachers at Normal Community West High School. Preliminary findings suggest that students in mixed ability classes have higher levels of self-confidence overall than those in ability-grouped classes. Our results are consistent with the findings of Jeannie Oakes and other renowned researchers in this field. The project has implications for all students and educators as well as for those concerned with improving students' self-confidence levels and the learning environment in schools.

Poster Presentation P38

**VARIATION IN METABOLIC COST OF EMBRYONIC DEVELOPMENT
OF THE FRESHWATER SNAIL, *Physa* SP.**

Andrew Hall and William Jaeckle*

Biology Department, Illinois Wesleyan University

Embryos of the freshwater snail *Physa* sp. complete their development within an egg capsule and hatch as juveniles. To estimate the energetic cost of development, oxygen consumption rates of egg masses were monitored from deposition to hatching. Oxygen consumption increased during development ($r^2=0.173$, $p<0.01$), but there was no consistent pattern. A negative correlation existed ($r=-0.984$, $p<0.01$) between hatching time and oxygen consumption, and a positive correlation existed ($r=0.903$, $p<0.05$) between the rate of oxygen consumption and total energy expended. Masses with longer times to hatching utilize less energy than masses with shorter times to hatching. If egg capsules are initially identical, then embryos with higher metabolic rates and shorter development times will be smaller at hatching than individuals with lower rates of energy consumption. If capsule size varies, then differences in metabolism may result in different hatching times, but a common juvenile size. The effects of these differences on juvenile survivorship in the field are unknown.

Poster Presentation P39

TEACHERS OF THE SPECIAL SERVICES: WHAT THEY DO

Grace Hollander and Rebecca Gearhart*
Anthropology Department, Illinois Wesleyan University

This poster presentation highlights some of the activities that special service instructors in the middle school do every day. It includes direct quotations and information from an interview conducted with a special education teacher, Ginny Ronczkowski, from Tri-Valley Junior High School in Downs, Illinois, and some of her students as well as photographs taken during the school day. The presentation illustrates the kind of activities that special education teachers like Ms. Ronczkowski and Ms. Chiodo (an aide who works in the same classroom) do with their students, other teachers, and guardians of the students. This research reveals the significant contribution that special service instructors provide the education system as a whole.

Poster Presentation P40

**ANALYSIS OF CORONAVIRUS PROTEASE INHIBITORS AS
POTENTIAL THERAPEUTICS**

Katherine Houser and Susan Baker*

Biology Department, Illinois Wesleyan University

Department of Microbiology and Immunology, Loyola University

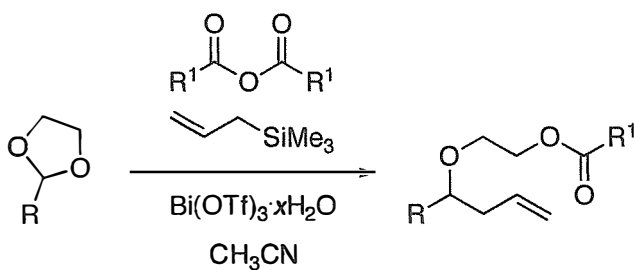
SARS-HCoV, or Severe Acute Respiratory Syndrome, is a novel human coronavirus that appeared within China in 2003. To date there are no vaccines or antiviral drugs able to either halt or prevent an infection by the virus. As part of an ongoing study, experiments were designed to develop and assess broad-spectrum antiviral drugs against several human and murine coronaviruses. The research involved testing antiviral drugs against the mouse coronavirus MHV. These drugs, which were composed of branched organic compounds, targeted the active site of one of the two proteases of the murine coronavirus, 3CLPro, halting the enzymatic activity resulting in viral inhibition. The drugs had already been proven effective in purified protease samples, but had yet to be tested in living cells. Thirty-five drugs were tested, and while twenty-two displayed no viral inhibition and five exhibited cell toxicity, eight drugs were shown to strongly inhibit viral replication. The drugs that were found to be effective at inhibiting the viral replication will continue on to be tested against SARS-HCoV in the Biosafety Level 3 lab at UIC. The effective drugs were also used further in order to screen for drug resistant variants of the virus. These mutants can then be sequenced so that the drugs can be improved and the resistance avoided.

Poster Presentation P41

**GREEN CHEMISTRY USING BISMUTH COMPOUNDS
BISMUTH TRIFLATE CATALYZED ALLYLATION OF DIOXOLANES FOLLOWED
BY *IN SITU* DERIVATIZATION USING ACID ANHYDRIDES**

Matthew G. Huddle, Jay E. Christensen, Joshua R. Lacey and Ram S. Mohan*
Chemistry Department, Illinois Wesleyan University

Cyclic acetals (dioxolanes) are useful protecting groups in organic synthesis but they can also be converted to other useful functional groups. Bismuth triflate has been found to be an efficient catalyst for the allylation of cyclic acetals followed by *in situ* derivatization of the product with acid anhydrides. Such multicomponent reactions save steps and work up after each step associated with a multi-step synthesis. Bismuth compounds are attractive as catalysts because of their remarkably low toxicity and ease of handling. The results of this study will be presented.



Poster Presentation P42

**ORGANOCHLORINE COMPOUNDS AND HEAVY METALS
IN NORTH AMERICAN GREY WOLVES (*CANIS LUPUS*)**

Stacy Hynes, Ryan Misek, Sarah Rueth, and
Stephen Hoffmann*, Jeffrey Frick*, and R. Given Harper*
Chemistry and Biology Departments, Illinois Wesleyan University

Sizeable grey wolf (*Canis lupus*) populations in North America are currently found in Alaska, Canada, Idaho, Wyoming, Montana, Michigan, Minnesota, and Wisconsin. Since the grey wolf is at the top of its food chain, this species may contain high levels of organochlorine (OC) pesticides (e.g., DDT) and metabolites due to biomagnification. Wolves may be exposed to heavy metals (e.g., cadmium, lead, mercury and zinc), which can reach toxic concentrations in areas where minerals have been extracted. However, no studies have documented OC pesticide or heavy metal contamination in grey wolves throughout their North American range, which is the purpose of this collaborative study with the U.S. Fish and Wildlife Service and with state and Canadian wildlife agencies. Wolves were either found dead or were collected via lethal control methods and the presence of OC compounds in wolf kidneys was determined via gas chromatography. The most frequently detected compounds included beta-BHC (present in 43/60 wolves; minimum-maximum levels = 0 - 897.9 ppb), alpha-BHC (present in 40/60 wolves; 0 - 1147.5 ppb) and heptachlor epoxide (present in 35/60 wolves; 0 - 252.5 ppb). There were no significant differences in beta-BHC levels among wolves collected from Alaska (Median (M) = 92.3 ppb, n = 17), Montana (M = 46.5 ppb, n = 24) and Idaho (M = 16.2 ppb, n = 16, $X^2 = 2.68$, $p = 0.26$). Likewise, there was no significant difference in beta-BHC levels between adult (Median (M) = 54.9 ppb, n=36) and juvenile (< 1 year old) wolves (M = 50.8 ppb, n = 11, U = 197.0, $p = 0.99$), or between males (M = 52.0 ppb, n = 20) and females (M = 77.5 ppb, n = 32, U = 306.0, $p = 0.79$). We are currently working on extraction techniques for heavy metals, which will be analyzed via Inductively Coupled Plasma Emission Spectrometry. The knowledge gained from this study may have implications for managing other top endangered predators in North America [e.g., red wolves (*Canis rufus*), Mexican grey wolves (*Canis lupus baileyi*) grizzly bears (*Ursus arctos*), and polar bears (*Ursus maritimus*)].

Poster Presentation P43

INVESTIGATION OF LASER-INDUCED BREAKDOWN IN AIR

Rob Inzinga and William Brandon*

Physics Department, Illinois Wesleyan University

Here we investigate some properties of laser-induced optical breakdown. Focusing a Q-switched YAG laser in air generated the breakdown, as manifested through the formation of a visible plasma spark. Some of the properties we studied included the angular distribution of the scattered laser light, plasma temperature, and plasma evolution. In particular, we have obtained angular distributions from time averaged frequency resolved measurements involving simultaneous scattering of the three YAG harmonics at 1064nm, 532nm, and 355nm.

Poster Presentation P44

PERCEPTION OF FACE ATTRACTIVENESS AND MATE SELECTION PROCESSES

Kelly Irvin and Gail Walton*

Psychology Department, Illinois Wesleyan University

Contrast effects occur when highly attractive faces reduce the perceived attractiveness of subsequent faces. Because of the high value society places on physical appearance, it is important to understand how experience with faces influences perception of attractiveness. This study investigated whether contrast effects occur after adaptation to attractive or unattractive faces. Contrast effects in this study decreased attractiveness ratings of faces after experience with highly attractive faces and enhanced attractiveness ratings after viewing unattractive faces. After viewing unattractive faces, a positive relationship was found between perceived self-attractiveness and perceived ability to compete for a long-term mate. After viewing attractive faces, self-attractiveness was positively correlated with higher attractiveness requirements for a long-term mate. Contrast effects were also found for prototypical faces. Results supported previous findings.

Poster Presentation P45

**THE EFFECTIVENESS OF THE 1996 CHILD SUPPORT REFORMS ON
ALLEVIATING CHILD POVERTY**

Ashley Kappmeyer and Venus Evans-Winters*
Sociology Department, Illinois Wesleyan University

A disproportionate number of children being raised in single-parent families are living in poverty. This has consequential effects on many aspects of a child's life, mainly attributable to the vast income disparities between single-parent and married-parent families. The poorest of single-parent families, those on welfare, are expected to decrease their dependence on welfare after only five years, relying on child support and income instead. However, a major problem exists in the collection of child support. Despite major reforms in 1996, a high rate of custodial parents are still not receiving full payments, and some are not receiving any payments. Thus, there is controversy as to whether major child support reforms have made a difference, and what further steps could be taken to improve the situation..

Poster Presentation P46

**ROLE OF THE MEDIAL SEPTAL AREA IN REGULATING
PREFRONTAL THETA RHYTHM IN RATS**

Leo Kelly and Joseph Williams*

Psychology Department, Illinois Wesleyan University

Theta rhythms are electroencephalogram (EEG) waveforms between 4-12 Hz and are correlated with arousal, orientation, exploration, attention, learning and memory, motivational drives and emotions and movements. Today, it is well established that cells of the medial septal area (MSA) pace the theta rhythm in the hippocampus (HPC) and that lesioning the MSA abolishes theta rhythm in the HPC. More recent studies have examined theta activity outside the hippocampus in areas such as the prefrontal cortex (PFC). However, the underlying anatomy and pharmacology of PFC theta is not as well established. This study will examine the role of the MSA in regulating prefrontal theta rhythm in rats to determine if the mechanisms controlling PFC theta are similar in nature to HPC theta mechanisms.

Poster Presentation P47

THE EFFECTS OF PHYSICAL ACTIVITY ON MATH SKILL ACQUISITION

Katherine Klowden and Venus Evans-Winters*
Educational Studies Department, Illinois Wesleyan University

The purpose of this poster presentation is to show the relationship between physical activity and math skill acquisition. We observed one fourth-grade class who used a dance program prior to math class and one fifth-grade class who engaged in traditional physical education after math class. A survey was used to evaluate students' beliefs about physical activity as well as samples of math grade reports to measure students' academic performance and beliefs about physical health. Preliminary findings show that those students who received some type of physical activity prior to math instruction were more likely to have positive results in acquiring math skills. Multiple expert researchers in the field supported these results. This research has implications for the importance of physical activity within the academic school day and the importance of exercise for young children. We hope that the results of this study will encourage school funding for exercise opportunities to improve academic achievement.

Poster Presentation P48

**CHRONOLOGICAL VERSUS THEMATIC: A METHODOLOGICAL BATTLE IN THE
AMERICAN HISTORY CLASSROOM**

Melissa Koeppen, Alison Mayer and Leah Nillas*
Educational Studies Department, Illinois Wesleyan University

A debate has emerged regarding the best method by which to teach American history at the secondary level: chronologically or thematically. Previous studies have focused on explaining the two methodologies rather than comparing their effectiveness in the American history classroom. Research was conducted in American history classrooms at two comparative public high schools in Central Illinois. Teachers who taught history chronologically or thematically as well as students taught by either method were surveyed. The purpose was to find the advantages and disadvantages in both teaching methodologies as well as teachers' and students' preference regarding the two methods. The study aims to help American history curriculum planners implement the most effective method, chronological or thematic, depending on students' needs.

Poster Presentation P49

**HISTONE MODIFICATION PATTERNS ACROSS THE X CENTROMERE
REFLECT GENOMIC ENVIRONMENT**

Kristen Kopf and Beth A. Sullivan*

Biology Department, Illinois Wesleyan University
and Duke University

Centromeres, the primary point of constriction on chromosomes, are essential for proper chromosome segregation during meiosis and mitosis. Due to their large sizes and repetitive DNA content, centromere regions have been excluded from genome projects. However, being such fundamental functional elements that are epigenetically regulated, we want to understand their genomic organization and the relationship between underlying DNA sequence and chromatin and protein organization. In collaboration with a colleague at NHGRI, we are using chromatin immunoprecipitation-PCR (ChIP-PCR) to generate epigenomic profiles that overlay histone modifications onto the centromeric-pericentromeric genomic assemblies from human-mouse hybrid chromosomes. Our findings indicate that centromeric chromatin organization is regulated via epigenetic factors rather than wholly DNA sequence. This information is being used to identify genomic features that structurally, and potentially functionally, separate the centromere from the rest of the genome.

Poster Presentation P50

COMPLACENT BOYS AND LAGGING SCORES: EXPLORING POSSIBLE CONNECTIONS

Katie Korder and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

Current trends in educational research shifted focus from girls' early struggles for educational equality to the struggling boys in reading and writing classrooms. This study follows that trend. Specifically, it investigates the connections between the masculine attitudes of boys and their performance in school. Data was gathered from sixth grade male students and was quantitatively analyzed for connections between attitudes and academic abilities. Attitudinal survey was administered to collect information about the participants, general attitudes towards school, peer influences, ease of school, and subject preference. Stanford Ten Achievement Tests (SAT 10) and reported grades of participants were also analyzed. It is hypothesized that there is a correlation between peer influence and general attitude with participants, academic abilities. Research results suggest further investigation into the cause of attitudes towards school and possible influences on these attitudes.

Poster Presentation P51

AMYGDALAR THETA RHYTHM

Lauren Koteles and Joseph Williams*

Psychology Department, Illinois Wesleyan University

Theta rhythm, the intrinsic oscillation of extracellular current at a frequency of 4-12 Hz, has been recorded in a multitude of brain structures. Extensive research of the hippocampal (HPC) form of this phenomenon has shown that its production within this structure is mediated by muscarinic cholinergic inputs from the medial septal area. Although relatively little is known about the production and control of amygdalar theta, reported interactions between HPC theta and amygdalar theta during the consolidation of emotionally-relevant memories leads to suggestions that the two types of theta may have similar underlying mechanisms. This study recorded amygdalar theta using an electrode implanted into the basolateral amygdala of eight male Long-Evans rats. Rats were anaesthetized during all recordings. The dominant frequency and power of theta during intraperitoneal (IP) injections of atropine, a muscarinic cholinergic antagonist, were recorded and compared to control saline injections using an analysis of variance (ANOVA) test. The dominant frequency and power of theta during intracranial injections of tetracaine, a local anaesthetic, into the medial septal area were also recorded and compared to control saline injections.

Poster Presentation P52

**PREFERENCES OF COMMUNICATION AMONG STUDENTS, TEACHERS, AND PARENTS,
AT THE SECONDARY LEVEL**

Amy Kraus, Jill Raabe and Venue Evans-Winters*
Educational Studies Department, Illinois Wesleyan University

The American school system is currently facing demands for the improved performance of both students and teachers. Previous research indicates that students' performance is positively influenced by increased parental communication with schools; however, parent-school collaboration decreases as students mature, particularly by the time students reach high school. The purpose of this study is to examine the effectiveness of current parent-teacher communication methods regarding student academic performance and behavior at school by analyzing the preferences of high school parents, teachers, and students. Previous research has not considered the students' role in parent-teacher communication, but their participation may provide further insight into effective communication styles for the family. A series of parallel questionnaires targeting parents, teachers, and students were distributed at a local high school to record the frequency, immediacy, and preferences of parent-teacher communication styles. The perceived effectiveness of parent-teacher communication from these various perspectives may highlight disconnects between parents and teachers.

By varying methods of communication, parents and teachers can minimize such disconnects, allowing opportunities for more effective communication and potential improvement of student academic performance and behavior.

Poster Presentation P53

FLUID FLOW THROUGH LYTECHINUS VARIEGATUS SEA URCHIN LARVAE

Sarah Lewis and William Jaeckle*

Biology Department, Illinois Wesleyan University

Sea urchins (Echinodermata: Echinoidea) produce developmental stages called larvae that feed and develop within the water column prior to becoming a bottom-dwelling juvenile. We evaluated the ability of larvae of the sea urchin *Lytechinus variegatus* to assimilate dissolved organic material (DOM) from seawater using fluorescence microscopy. In particle-free seawater, the larval digestive system readily absorbed macromolecules (a protein and a polysaccharide, 1mg/mL). With continued exposure, the label was detected within the body cavity suggesting that these molecules were distributed from the digestive system to other areas. To assess the effect of DOM on rates of particle capture, larvae were exposed to polystyrene beads (26,046/mL, 3 μ m diameter) in the presence or absence of DOM (the protein bovine serum albumin (BSA)). Rates of particle capture by larvae were affected by the presence of BSA, but the larvae of different ages responded differently. Younger larvae captured more beads in the absence of BSA while older larvae captured more beads in the presence of BSA.

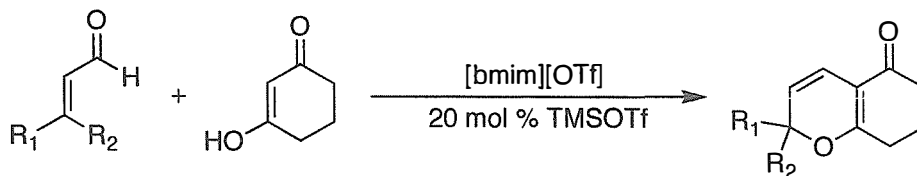
Poster Presentation P54

Formal [3 + 3] Cycloaddition of α,β -Unsaturated Aldehydes to 1,3-Cyclohexanedione in an Ionic Liquid

Joshua R. Lacey and Ram S. Mohan*

Chemistry Department, Illinois Wesleyan University

The cycloaddition of α,β -unsaturated aldehydes and 1,3-dicarbonyls is a useful tool for the synthesis of natural products. We are investigating this type of reaction using an ionic liquid, 1-butyl-3-methylimidazolium triflate as solvent. Ionic liquids are becoming attractive as solvents due to their unique solubility properties and non-volatile nature. The results of this study will be discussed.



Poster Presentation P55

TO READ OR NOT TO READ: SHOULD THE CLASSICS BE REPLACED?

Lauren Little and Leah Nillas*

Educational Studies Department, Illinois Wesleyan University

A constant debate amongst high school English literature teachers is whether or not they should require their students to read books from the classical literary canon. Often times these books are difficult for students to understand, and rather than learning to enjoy reading, these teens simply view reading as a difficult activity that they are forced into doing. However, these books are also considered great masterpieces with timeless themes and beautiful language, so by depriving students of reading this classic material, it is possible that teachers would be doing students a disservice. In my research I reviewed the literature on this topic, I surveyed four different classes of literature students, and I interviewed four experienced English Literature teachers. My research showed the importance of integrating young adult, diverse, and contemporary literature into the classically founded English curriculum.

Poster Presentation P56

**ANALYZING THE RELATIONSHIP BETWEEN CHANGE IN MONEY SUPPLY
AND STOCK MARKET PRICES**

Biniv Maskay and Margaret Chapman*
Economics Department, Illinois Wesleyan University

This paper examines the relationship between change in the money supply and stock prices. This paper also dichotomizes change in the money supply into anticipated and unanticipated change and analyzes each of their relationships with stock market prices. Competing theories exist on how change in the money supply affects stock prices. The Keynesian economists argue that change in the money supply and stock prices are positively related, where as the real activity theorists argue otherwise. This study finds a positive relationship between change in the money supply and stock prices, agreeing with the Keynesian economists. Economists also debate on the relationship of anticipated and unanticipated change in money supply with the stock market prices. The proponents of Efficient Market hypothesis (EMH) argue that anticipated change in money supply would not have a significant impact on stock prices and only unanticipated change in the money supply would matter, whereas the opponents of EMH argue that anticipated change in money would matter too in determining the stock prices. This paper finds that anticipated change in money supply matter more than unanticipated change, concluding that EMH does not persist.

Poster Presentation P57

**WHAT KEEPS US IN THE CLASSROOM?
MOTIVATIONS OF EFFECTIVE TEACHERS**

Karrin Musich, Sarah Wirth and Leah Nillas*
Educational Studies Department, Illinois Wesleyan University

Ample research has looked into the causes, factors, and implications of burnout among teachers due to the important finding that burned out teachers are also less effective teachers (Goddard, O'Brien, & Goddard, 2006). Conversely, our research aims to look into the factors that motivate the most effective teachers to remain in the field of education. We surveyed forty teachers from two elementary schools in Central Illinois to gain their insights on the characteristics that define effective teachers. We used this data to select a small group of five teachers with varied teaching experience and backgrounds. These teachers were interviewed to better understand the factors that drew them to education and continue to keep them inspired in the classroom. Our research will discuss specific strategies that have been used by effective practicing teachers to help new and experienced teachers alike maintain their motivation and effectiveness.

Poster Presentation P58

DETERMINATION OF THE BAND GAP AND DISORDER PARAMETER OF WATER

Justin Myer and William Brandon*

Physics Department, Illinois Wesleyan University

We have constructed an apparatus to measure Faraday rotation in liquids and other transparent materials. Using a theory from Mort and Scher relating the amount of rotation to the level of disorder and resonance frequency in amorphous materials, a prediction of the band gap of liquid water has been obtained. We find a band gap that is slightly lower than what has been obtained from previous experiments, but which is in agreement with current theoretical predictions by Cabral do Couto et al.

Poster Presentation P59

SOCIAL OSTRACISM AND THE EFFECT ON ELECTROENCEPHALOGRAM ACTIVITY

Genevieve Nehrt and Joseph Williams*

Psychology Department, Illinois Wesleyan University

Previous fMRI research on social ostracism during participation in a ball-tossing task found increased activity in the anterior cingulate cortex when participants were not included in the ball-tossing game. This study aims to expand upon this previous research by seeing if similar results can be observed using EEG technology in a more realistic behavioral task, such as a chat room environment. This paradigm allows researchers to better understand the effects of social rejection on psychological, behavioral, and physiological responses and allows the participant more freedom of movement. It is hypothesized that when participants are excluded from the conversation, there will be an increase in theta EEG activity in the prefrontal cortex and less activation once the participants have been re-included into the conversation.

Poster Presentation P60

**REVOLUTIONARY REFORMS IN THE NIGERIAN BANKING SECTOR: THE EFFECTS
ON PROFITABILITY AND COST OF INTERMEDIATION**

Bukola Olaosebikan and Elisabeth Pana*

Business Administration Department, Illinois Wesleyan University

In July 2004, the chairperson of the Nigerian Central Bank announced a 1150% increase in the minimum capital requirement for banks operating in Nigeria, from less than N2 billion to more than N25 billion. This paper examines the wave of mergers and acquisitions, initial public offerings and bank liquidations initiated by the regulatory change and its impact of the cost of intermediation and profitability. Finally, we identify some of the differences between the two sub-samples - banks that achieved the stipulations aforementioned ad novo legislation (through M&As or IPOs) and banks that failed as a direct result of the new rule.

Poster Presentation P61

**ASSIMILATION OF DISSOLVED ORGANIC MATTER BY
NAUPLIUS LARVAE OF /ARTEMIA/ SP.**

Oluwakemi Onajin and William Jaeckle*
Biology Department, Illinois Wesleyan University

Artemia sp. is an aquatic crustacean commonly known as Brine Shrimp or Sea Monkey. Each generation begins when females lay cysts containing developmentally arrested embryos. Their free-living life cycle begins when embryos are activated and hatch as nauplius larvae. Nauplius larvae have three appendage pairs that are used for locomotion and collection of particulate foods. Owing to the presence of a cuticle, they are considered incapable of assimilating dissolved organic material (DOM) from seawater. We exposed nauplii to a fluorescently labeled protein (0.5 mg/mL) in seawater and evaluated the distribution of the label using fluorescence microscopy. The label initially appeared only in the digestive system. With continued exposure, fluorescence was seen throughout the larval body suggesting that materials were distributed into the blood vascular system. Nauplii of *Artemia* pass seawater through their digestive system and are capable of assimilating DOM and their diet consists of both particulate and dissolved foods.

Poster Presentation P62

**EFFECTS OF GUANFACINE ON MNEMONIC PROCESSING FOLLOWING LESION
TO RAT MEDIAL SEPTUM: A NOVEL TREATMENT APPROACH TO
ALZHEIMER'S MEMORY TYPE DEFICITS**

Mark D. Opal and Renee Countryman*
Psychology Department, Illinois Wesleyan University

Cognitive deficits associated with Alzheimer's disease (AD) are known to result from decreases in acetylcholine (ACh) within the cholinergic system of the medial septal area (MSA), which projects to the hippocampus (HPC). Recent studies underline the significance of norepinephrine (NE) within the context of decreased memory functioning following lesioning to the MSA. However, this finding has not been studied as thoroughly. Research shows that a decrease in NE leads to a decrease in memory processing. Following a chemical lesion to the cholinergic system of the MSA, axonal cholinergic arborization is compensated for by an increase of NE afferent fiber projection to the HPC. Consequently, increased NE projection to the HPC might increase NE transmitter levels, thereby increasing processing. As a result, the NE agonist Guanfacine will be administered following lesion in an attempt to increase NE levels in the HPC following lesions to the MSA.

Poster Presentation P63

HOST-GUEST INTERACTIONS BETWEEN MACROCYCLIC COMPOUNDS AND POLYOXOMETALATES

Laura Peters and Dr. Rebecca Roesner*
Department of Chemistry, Illinois Wesleyan University

While the host-guest chemistry of small polyatomic ions has been studied extensively, the host-guest chemistry of large polyoxoanions has not been researched as widely and is therefore an open area for investigation. The host-guest assembly of polyoxoanions and cationic macrocycles has recently led to the preparation of new materials and may soon lead to new synthetic strategies. It has been proposed, for example, that two or more protonated azamacrocycles could self-assemble around a polyoxometalate and then be linked together, covalently, through reactive pendant arms. The negative charge on the polyoxometalate would attract the positively charged ammonium groups of the macrocycles. To this end, a thirty-membered decaazamacrocycle (Figure 1, Reference 1) and negatively charged polyoxoanions have been synthesized. Their host-guest interactions are currently under investigation.

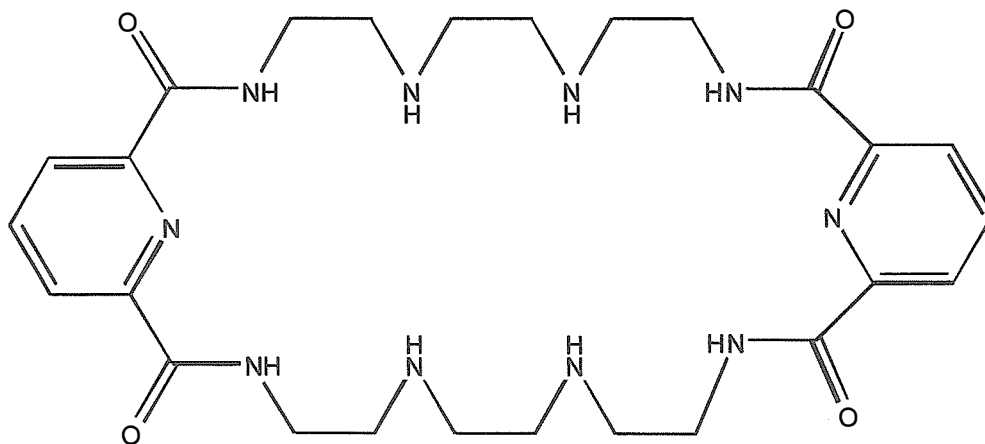


Figure 1

Reference 1:

Rybak-Akimova, Elena. (2006). Anion binding to Monotopic and Ditopic Macrocyclic Amides. *Organic Letters* 8(15), 3171-3174 & Supplementals.

Poster Presentation P64

**EL PROYECTO LA CEIBA-PILARES: CONSERVATION THROUGH
ALTERNATIVE DEVELOPMENT**

Karen Petersen and Rebecca Gearhart*
Anthropology Department, Illinois Wesleyan University

Wide-spread deforestation has had devastating effects throughout the world, leading to desertification and, in many cases, to species extinction. The dry forests situated along the coast of Ecuador and northwestern Peru are no exception to this problem. Named by Conservation International as one of the world's biodiversity "hot spots," this region is home to hundreds of endemic species. Thus, in 2001, Nature and Culture International (NCI), a NGO dedicated to the conservation of threatened ecosystems, purchased a large reserve in the border region between the two countries. With the aim of enhancing conservation efforts in the region, they initiated a program to provide technical assistance and economic alternatives to the 750 people living around the reserve. This poster provides an overview of a case-study of this program (El Proyecto La Ceiba-Pilares) and, in general, it serves as an analysis of conservation through community development. Based on ethnographic research conducted in the communities bordering the reserve, this poster examines the relations between NCI and the involved communities, as well as the consequences of this involvement.

Poster Presentation P65

YOU CAN'T JUDGE A CD BY IT'S COVER

Jennifer Rambo and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

This poster will highlight the experiences of three aspiring musicians in the band The Color Channel by using photographs and personal interviews with the group's young male members. This research demonstrates the unique qualities of the band, along with discussing the ways in which they try to convey a religious message while still playing rock music. This presentation also illustrates the difficulties experienced by the band including trying to shed the title of playing "Christian rock" music, which members of the band believe has turned off some people to their music. Ultimately, the poster aims to spark discussion about how the internet is an important tool for many aspiring musicians to make themselves known in a huge industry, as well as musicians' views on illegal internet downloading practices.

Poster Presentation P66

IMPACTS OF VISITOR FEEDING OF BIRDS AT GRANTS PICNIC GROUND

Kathryn Rinder and Peter Brennan*
Illinois Wesleyan University
and The School for International Training

Feeding of birds at Grants Picnic Ground (GPG) in Dandenong Ranges National Park has been occurring for many years, and is part of a lease agreement that lasts until 2019. The main birds that are fed at the site include Sulphur-crested Cockatoos, Crimson Rosellas, Galahs, Long-billed Corellas, and Australian King Parrots. To understand the impacts feeding was having at the picnic ground, I conducted a study from 14 April to 11 May, 2006. One aspect of this study included observations of the site itself, the vegetation at the site, visitor numbers, use of, and behavior at the site, and bird numbers, aggression, and behavior. I gathered this data by spending 108 hours at the site counting birds and visitors, aggressive acts, unusual behavior by birds or visitors, trip-mapping, and noting the condition of the site and vegetation. In order to understand why visitors were coming to the site, what they were doing, why they were feeding the birds, and what they knew about feeding the birds, I conducted a survey from 22 April to 3 May, 2006. The final aspect of my project was interviews with DRNP staff, avian specialists, and local residents. Staff interviews allowed me to determine their thoughts on the issue and how they thought the site should be managed. The avian specialists provided insight into normal bird population behavior and health. Talking to local residents helped me understand the community perspective on the issue.

Through my research, I concluded that the bird population at GPG is inflated due to feeding, most likely has diseases, and is dependent on visitor feeding, which results in an increased level of aggression in the birds. There is defoliation of tree ferns, shrubs, and trees as a result of the large bird population, as well as damage to wooden structures at the site (including the deck of the kiosk located there). There is insufficient signage on guidelines, regulations, and facilities, in addition to inadequate sanitizing opportunities. Most people visit GPG to feed the birds, and although many people are aware of some of the problems and risks associated with feeding birds, many are unclear on the park regulations. Many local residents are very dissatisfied with the current situation because of the damage to their property, noise of the birds, health risks, and threat to Superb Lyrebirds. These findings indicate that there are a number of improvements that can be made in the management of feeding at GPG. Most importantly, this would help reduce the risk of disease transmission and increase the health of the birds. Through this research, I have made a number of suggestions on ways feeding at GPG could be modified to lessen the impacts.

Poster Presentation P68

THE EFFECTS OF PHYSICAL ACTIVITY ON MATH SKILL ACQUISITION

Lauren Rosasco and Venus Evans-Winters*

Educational Studies Department, Illinois Wesleyan University

The purpose of this poster presentation is to show the relationship between physical activity and math skill acquisition. We observed one fourth-grade class who used a dance program prior to math class and one fifth-grade class who engaged in traditional physical education after math class. A survey was used to evaluate students' beliefs about physical activity as well as samples of math grade reports to measure students' academic performance and beliefs about physical health. Preliminary findings show that those students who received some type of physical activity prior to math instruction were more likely to have positive results in acquiring math skills. Multiple expert researchers in the field supported these results. This research has implications for the importance of physical activity within the academic school day and the importance of exercise for young children. We hope that the results of this study will encourage school funding for exercise opportunities to improve academic achievement.

Poster Presentation P69

**THE ROLE OF ANTIOXIDANTS IN NITRIC-OXIDE INDUCED
APOPTOSIS IN VASCULAR SMOOTH MUSCLE CELLS**

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Biology Department, Illinois Wesleyan University
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Apoptosis of vascular smooth muscle cells (VSMC) has been identified as having an important role in the prevention of neointimal hyperplasia. This is due to the ability of NO to induce programmed cell death, or apoptosis, of VSMC following injury. While the regulation of VSMC apoptosis is complex and not fully understood, it has been shown that upon VSMC stimulation with NO there is upregulation of the tumor suppressor gene p53. Previous studies indicate that down-regulation of p53 results in an increase in cellular ROS. Since p53 is a transcription factor known to affect the transcription of antioxidant proteins, it has been speculated that increased ROS levels are a result of the absence of p53 transcribed antioxidant proteins. ROS levels in VSMC were measured using flow cytometry both at baseline and following NO exposure. At baseline, ROS levels were significantly higher in p53^{-/-} than p53^{+/+} VSMC. In response to NO treatment, the ROS increase was more pronounced in p53^{-/-} than p53^{+/+} VSMC. Western blot analysis was performed to identify which pro- and anti-oxidant proteins were affected. The antioxidant protein most differentially expressed between p53^{-/-} and p53^{+/+} VSMC was peroxiredoxin (PRX)-III. Appropriately, PRX-III is a mitochondrion specific H₂O₂ scavenging enzyme and has been cited as a critical regulator of mitochondrial H₂O₂. The prospect of PRX-III providing a p53 mediated protective effect in p53^{+/+} VSMC matches well with the current understanding of PRX-III's role in mitochondria as well as the model of NO-induced apoptosis.

Poster Presentation P70

**IDENTITY AND ACCEPTANCE: DESIRES AND ISSUES WITHIN
THE COMPUTER GAMING SUBCULTURE**

Angela Rumsey and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

This poster presentation features photographs of, and ethnographic interviews conducted with, two college-aged computer gamers and focuses on several main issues surrounding the computer gamer subculture. The ethnographic interviewees bring to light the intense degree of socialization crucial to computer gaming, the necessity of establishing a positive identity within the gaming world, and the degree to which computer gaming is beneficial to those who play. Computer gaming is a worldwide phenomenon and these issues are relevant to many cultures, in real life as well as in the gaming world. As desired by the interviewees, this presentation is designed to promote understanding of the computer gamer subculture by non-gamers by creating parallels between gaming and other hobbies, and highlighting the many skills: social, mental, and physical, that are learned through computer gaming.

Poster Presentation P71

**THE PHYLOGENETIC DISTRIBUTION OF PORPHOBILINOGEN SYNTHASE (PBGS)
AMONG INVERTEBRATE PHyla: AN INVESTIGATION OF THE PRESENCE OF PBGS IN
NEMATOSTELLA VECTENSIS**

Kelly Samartino and David Bollivar* and William Jaeckle*
Biology Department, Illinois Wesleyan University

The enzyme porphobilinogen synthase (PBGS) is known to catalyze the biosynthesis of tetrapyrroles such as heme and chlorophyll. The PBGS enzyme has been found in microorganisms, plants, vertebrate and invertebrate animals. This study was an investigation of the phylogenetic distribution of PBGS among invertebrate phyla. There is one example of an animal that lacks the PBGS enzyme, *Caenorhabditis elegans* (phylum Nematoda), thereby necessitating the acquisition of tetrapyrroles from its diet. Using a standard assay for PBGS, the presence of the enzyme was confirmed in the photosynthetic bacterium *Rhodobacter capsulatus*. No evidence of PBGS activity was demonstrated in *Nematostella vectensis*, a sea anemone (phylum Cnidaria); although, it was established that the *Nematostella vectensis* contained heme using a qualitative pyridine hemochromogen method.

Poster Presentation P72

RECOVERY FROM SOCIAL-OSTRACISM AND ITS PREDICTORS

Kelly Sanderson and Doran French*

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Individuals are frequently ignored by others during social interactions and occasionally these episodes of exclusion are painful. In this study, I am assessing personality characteristics that predict individual differences in reactions to social-ostracism. Female undergraduate students participated in a chat-room with two confederates in which they were first included and then excluded from the interaction. Subsequently, they were reincluded and the major analyses focus on variables that predict their reactions to this phase. Variables hypothesized to predict a positive recovery from ostracism (as indexed by mood, social engagement, and satisfaction) include personality predictors such as low loneliness, fear of negative evaluation, internal locus of control, social isolation, and social competence.

Poster Presentation P73

ISOLATION AND CONCENTRATION OF AQUEOUS PHOTOLYSIS PRODUCTS

Kyle Schnitzenbaumer and Timothy Rettich*
Chemistry Department, Illinois Wesleyan University

The photoactivity of nitrous acid coupled with its abundance in the atmosphere and natural waters make it a key component of photochemistry in the environment. The photolysis of aqueous nitrous acid in the presence of benzene, a radical scavenger, is thought to produce phenol, p-nitrophenol, p-nitrosophenol, and possibly other phenol-related solutes. These products are present at very low concentrations in the photolyzate, making them difficult to detect and quantify. The objective of this research is to develop an analytical procedure that will isolate, concentrate, and quantify such solutes. Solid phase extraction was selected as the most promising technique for isolating and concentrating the solutes, and UV-Vis spectrophotometry was selected for analysis and quantification. Several solutions for pretreatment of the solid were examined for their effectiveness in helping solute adsorption. Several solutions for washing the adsorbed solutes from the solid were also examined. Results to date are quite promising, indicating that, despite a loss of some of the solute, a procedure has been developed that concentrates solutes by several orders of magnitude in a reproducible fashion

Poster Presentation P74

**THE ASSIMILATION AND DISTRIBUTION OF DISSOLVED ORGANIC MATTER
BY PLANULAE OF SEA ANEMONES**

Amy Slott and William Jaeckle*

Biology Department, Illinois Wesleyan University

The free-living developmental stage of sea anemones (phylum Cnidaria) is the planula larva. In general the feeding biology of planulae is poorly known and there is only one report of the ability of planulae to assimilate dissolved organic materials (DOM, specifically amino acids) from seawater (Ben-David-Zaslow and Benayahu, 2000). We examined the ability of planula larvae to assimilate dissolved proteins and polysaccharides from seawater and then distribute these materials throughout their bodies. Planulae were incubated, for known time intervals, in seawater containing ferritin, iron dextran, or bovine serum albumin (1mg / mL) and examined using light and fluorescence microscopy. With longer exposure times there was an increase in the amount of label in only the larval pharynx and endoderm; there was no evidence that these materials were distributed to the overlying ectoderm. Our results reveal a potential source of nutrition for the development of planula larvae.

Poster Presentation P75

**ROLE OF BRAIN INFLAMMATION IN HEIGHTENED SEIZURE SUSCEPTIBILITY
AFTER EARLY-LIFE SEIZURES**

Jason Somogyi and Sookyong Koh*

Illinois Wesleyan University and Northwestern University

Research suggests a functional role for inflammation as a cause of neuronal hyperexcitability and neuron degeneration. Significant increases in genes that code for classic inflammatory responses have been observed after seizures induced by kainic acid (KA). Activation of microglia (immune cells the CNS) and increases of cytokines and complements are implicated as initiating events for seizure-induced inflammatory responses. Previous work has shown that a single seizure early in life can cause long lasting alterations that lead to a seizure-prone state. This research examines the role neuro-inflammation in the increase of seizure susceptibility. First, increased activation of microglia after early seizures was observed in both juvenile rats and transgenic mice. To more effectively demonstrate the role of inflammation in heightened seizure susceptibility, rats were treated with anti-inflammatory agents after early seizures. From this, it was observed that the anti-inflammatory agents are capable of decreasing both microglia activation and seizure susceptibility implicating a strong role for inflammation in increased seizure susceptibility. However, the use of anti-inflammatory treatments is also associated with risks resulting from immune system modulation.

Poster Presentation P76

AN EXAMINATION OF THE PHOTOCHEMISTRY OF NITROUS ACID

Michael St. Aubin and Timothy Rettich*
Chemistry Department, Illinois Wesleyan University

With our increased use of fossil fuels, there has been a major increase in emissions of atmospheric pollutants. Featured among these are oxides of nitrogen (NO_x) formed primarily by internal combustion engines (automobiles). NO_x reacts in the environment to form various compounds, including nitrous acid, HONO. Nitrous acid is photolyzed by UV light from the sun, forming radicals that can react with a myriad of volatile organic compounds in the atmosphere, especially unsaturated hydrocarbons. This investigation has two objectives: (1) a study of the thermal stability of aqueous nitrous acid, monitored by UV Vis spectroscopy and pH; and (2) a study of ethylene (H₂C=CH₂, a simple model for unsaturated compounds) as a radical scavenger used during the photolysis of aqueous nitrous acid.

Poster Presentation P77

**LANGUAGE LEARNING INTERRUPTED: INTEREST AND ACHIEVEMENT IN
FOREIGN LANGUAGE OVER GAPS IN TIME**

Kate Swearingen and Venus Evans-Winters*
Educational Studies Department, Illinois Wesleyan University

The United States is becoming an increasingly bilingual country - learning a foreign language provides not only social benefits for students, but research also suggests it can increase achievement in other subjects as well (Armstrong and Rogers, 1997). Educational research regarding interest and achievement in foreign language is essential in the ever-changing context of our country. This research is concerned with problems in a rural school community with learning a foreign language. Based on a survey of foreign language students and teachers, as well as observations during the researcher's student teaching experience, preliminary findings show that a significant amount of time without contact with the language being learned can create a lack in student interest and achievement in a foreign language. Generally, changes in scheduling or additions of extra-curricular activities focused on the new language learners need to be made to compensate for these gaps in time. Any steps we can take to help increase interest and achievement in foreign language will help give students the education they need to be successful in our society, and, more importantly, to create a strong, culturally sensitive, and well educated future for our country.

Poster Presentation P78

**SYNTHESIS OF RARE SUGAR MOLECULES: UTILIZING FERMENTATION
BIOTECHNOLOGY FOR THE PRODUCTION OF L-RIBOSE**

Melissa Tisoncik and Stephen Hoffmann* and David Demirjian*
Chemistry Department, Illinois Wesleyan University
and Zuchem, Inc.

Carbohydrate-based molecular research for biochemical and pharmaceutical companies is becoming increasingly important due to the involvement of carbohydrates in numerous biological functions; including cellular recognition, signaling, and even the development of disease states. The need to access consistent, pure and inexpensive carbohydrate starting materials is also an important factor to consider. This research is focused on the synthesis of one such rare glycochemical L-ribose due to its use in nucleoside-based pharmaceuticals. Zuchem, a biochemical company, has proposed a new synthetic route for the production of L-ribose which utilizes the NAD-dependent mannitol dehydrogenase (MDH) from *Apium graveolens* (garden celery) by specifically converting ribitol to L-ribose through the means of enzymatic oxidation using proprietary fermentation biotechnology. To increase optimization and purity of the L-ribose product through this synthetic route, Zuchem research parameters involve varying MDH zinc dependency, fermentation salt concentrations, and utilizing numerous inexpensive starting materials. In conclusion, this process produced about 90% pure L-ribose fractions for marketing.

Poster Presentation P79

**CODEPENDENT INDEPENDENCE: COMMUNITY AND INDIVIDUALITY AMONG
AMERICAN RECREATIONAL SPORT CLIMBERS**

Miranda Utzinger and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

This poster presentation illustrates the importance of teamwork and personal achievement within the Midwestern American rock climbing community. Using photographs to represent data gathered from participant-observation and ethnographic interviews, the presentation explores issues of competition and cooperation among rock climbers. It also reveals the research consultants' views on recent changes in the sport, especially with regards to the emergence of numerous indoor climbing gyms throughout the United States. The poster is designed to portray the attitudes and attributes that unite advanced rock climbers as a distinct community, while also revealing the differences between Midwestern American climbers and those from other areas of the world.

Poster Presentation P80

CHILDREN AND READING

Jaclyn M. Verticchio and Venus Evans-Winters*
Educational Studies Department, Illinois Wesleyan University

The purpose of this poster presentation is to illustrate the importance of parental involvement on reading fluency and comprehension in Kindergarten students. Considering the importance of the literacy rate of students on the quality of their education, this research is important because we need to find effective ways to help students improve their reading ability. There have been many similar studies conducted on the development of literacy skills in children. In order to find the relationship between parental involvement and reading ability and comprehension, parent surveys and a three week reading log were distributed to Kindergarten parents to fill out. The Kindergarten students were observed reading during class. Similar to results of previous studies on reading development, the preliminary findings show that the increased parental involvement does have a positive effect on reading fluency and comprehension. One of the pathways that will lead to fluent reading in elementary students is for parents to take an active role in developing the reading comprehension and ability of Kindergarten students. The study has implications for all elementary school students, parents, and teachers.

Poster Presentation P81

STUDENT TEACHERS: BETWIXT, BETWEEN, AND SUPPORTED

Jacqueline Wickham and Rebecca Gearhart*

Sociology and Anthropology Department, Illinois Wesleyan University

This poster presentation highlights data collected through ethnographic interviews and photographs to describe the experiences of student teachers. Anthropological analysis of student teaching is framed within Arnold Van Gennep's three-stage rite of passage model, which consists of separation, transition, and re-incorporation. The research also explores the variety of people involved in student teaching, many of whom have competing agendas for what should be accomplished during the students' teacher training. Through the photographs and interviews, the research consultants explain the issues they faced as student teachers, and discuss the relationships they developed during their student teaching experience

Poster Presentation P3, P82

EFFECTS OF DEPHOSPHORYLATION IN 7E MUTANTS OF NPR-A

Bridget Wall and Brian Walter*

Biology Department, Illinois Wesleyan University

Natriuretic peptides (designated ANP, BNP, and CNP) are hormones and paracrine factors which regulate blood volume, blood pressure, ventricular hypertrophy, pulmonary hypertension, fat metabolism and long bone growth. When bound to natriuretic peptide receptors, they allow for the production of cGMP (cyclic guanosine monophosphate), a secondary messenger which allows for the production of proteins from the cell. These receptors are designated NPR-A/GC-A and NPR-B/GC-B. Both are guanylyl cyclases (enzymes that synthesize cGMP). The focus of this research is to further examine the involvement of dephosphorylation in the desensitization of natriuretic peptide receptors. Previously, phosphorylation sites on the guanylyl cyclase domain have been mutated to express glutamate, an amino acid with a charge of -1 (the charge of a phosphate is -2). Therefore, the glutamate is mimicking the charge on the phosphorylated residue present when the receptor is phosphorylated.

Ergo, these NPR-A mutants (hereafter referred to as 7E mutants) are constitutively phosphorylated and always active. Within the current model, there should be a significant difference in cGMP production when stimulated with natriuretic peptides. By continuing previous studies geared toward a better understanding of phosphorylation in these receptors, members of the field of pharmacology will be able to develop a drug that will either semi-permanently dephosphorylate or phosphorylate natriuretic peptide receptors in an effort to treat heart disease and hypertension.

