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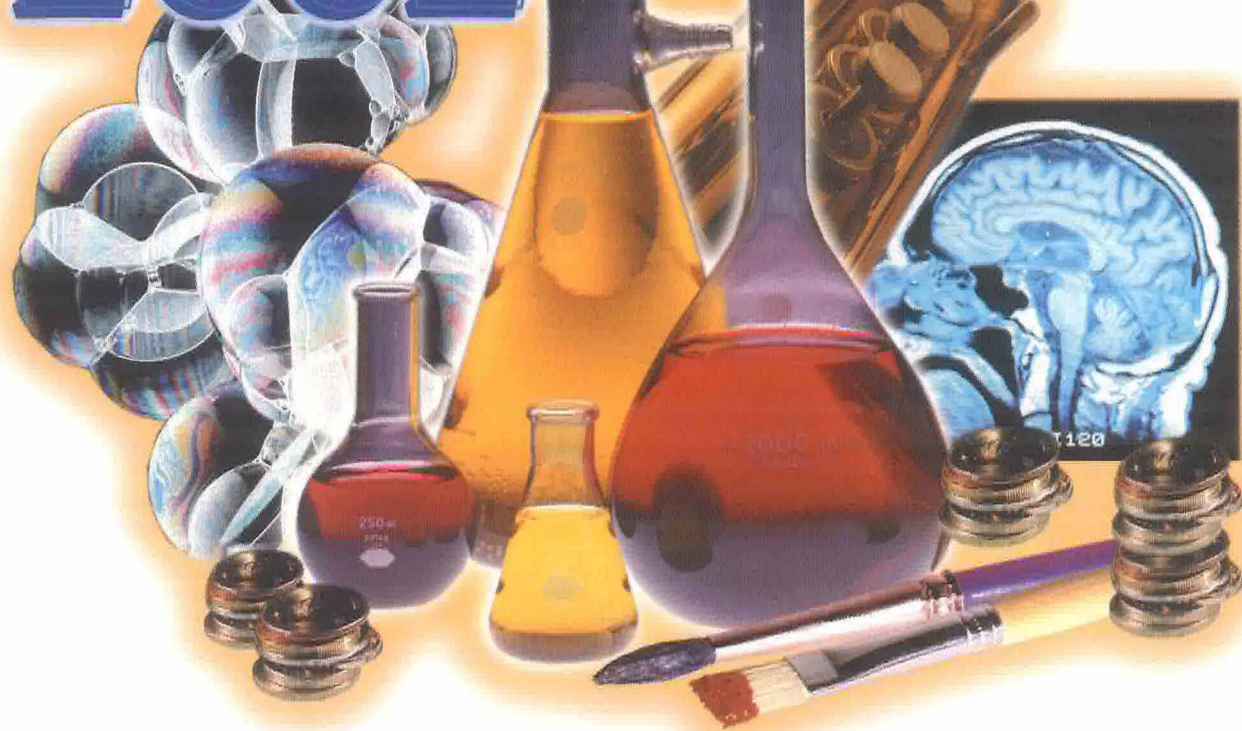
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**2002**



THIRTEENTH ANNUAL

JOHN WESLEY POWELL • IWU

# **STUDENT RESEARCH CONFERENCE**

April 19-20, 2002    Center for Natural Sciences

<http://www.iwu.edu/~jwprc/research.htm>

**Thirteenth Annual**

**John Wesley Powell • IWU**

# **Student Research Conference**

**Science Commons**

**Center for Natural Sciences**

**Friday, April 19, 2002**

**4:00 p.m.**

**Saturday, April 20, 2002**

**8:30 a.m. - 4:00 p.m.**

***Official Program***



## ACKNOWLEDGEMENTS

This conference could not have been a success without the contributions of the Conference Faculty Advisory Committee, whose members were (alphabetically) Joy Calico, Carren Moham, Ram Mohan, Mike Seeborg, and Dan Terkla.

Many thanks to Pat Neustel, who did all the work putting this program booklet together, as well as making all the arrangements.

## SCHEDULE OF EVENTS

### Friday, April 19, 2002

4:00 p.m.     “Designing Self-Guided Underwater Robots”  
by Charles Pell, Research Associate, Duke University  
Anderson Auditorium, Center for Natural Science

### Saturday, April 21, 2001

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 – Session I	
	Session 1	Anderson Auditorium
	Session 2	Beckman Auditorium
	Session 3	CNS Room E103
11:00 a.m.	Keynote Address: Charles Pell	Anderson Auditorium
12:00 noon	Luncheon	Main Lounge
1:15 p.m.	Poster Session B	Science Commons
2:15 p.m.	Oral Presentations – Session II	
	Session 4	Anderson Auditorium
	Session 5	Beckman Auditorium
4:00 p.m.	Presentation of Certificates	Anderson Auditorium

**KEYNOTE SPEAKER**

**"A PERIODIC TABLE OF THINGS THAT SWIM AND FLY"**

Charles A. Pell, Associate in Research, Biology Department, Duke University

11:00 a.m. Anderson Auditorium (C101)

As Mendeleev organized chemical elements, so too artist-biologist Chuck Pell has arranged living and extinct things that swim and fly into groups. When he discovered that nature had omitted some logical possibilities, he built models to see whether those options worked and then he wondered what all these patterns meant about comparative anatomy.

A research associate in biology at Duke University, Chuck Pell is Vice President of science and technology for Nekton Research in Durham, North Carolina. He is co-principal investigator on the biomimetic Miniature Autonomous Underwater Vehicle (MAUV) effort sponsored by the Defense Advanced Research Projects Agency. This is aimed at producing swarms of mass-produced MAUV's for environmental monitoring and mapping. His other biologically inspired projects include the Nektor flexible maneuvering thruster and PilotFish agile underwater vehicle, sponsored by the Office of Naval Research, plus educational toys like the TwiddleFish.

Pell has served as art director of the Duke Bio-Design biomechanics modeling facility and as research coordinator for Dinamation in Los Angeles, which built full-sized robotic dinosaurs for the Smithsonian, the British Museum and others. His lifelong interest in art images and powered sculptures of microorganisms, swimming and flying fauna (extinct and extant) and locomotor machinery continues in his present research and development activities.

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Billings, Kylee	P4	Olson, Jennifer	P40, P20
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Carpenter, Molly Jean	PB	Pollard, Susan	P35
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**ORAL PRESENTATIONS - SESSION 1**

**10:00 – 11:00**

**ANDERSON AUDITORIUM (C101)**

**CHAIR: John (Wes) Dyke, IV**

- 1.1 Timofey Chekhoyev, Economics
- 1.2 Anisha Madan, Economics
- 1.3 Deborah Slezak, Economics

**ORAL PRESENTATIONS - SESSION 2**

**10:00 – 11:00**

**BECKMAN AUDITORIUM (C102)**

**CHAIR: Laura Wieland**

- 2.1 Deborah Miller, Music
- 2.2 Charlene Recio, English
- 2.3 Kathryn Weber, English

**ORAL PRESENTATIONS - SESSION 3**

**10:00 – 11:00**

**CENTER FOR NATURAL SCIENCES (E103)**

**CHAIR: Bryce Nattier**

- 3.1 Alexander Dimov, Computer Science
- 3.2 Sara Irwin, Psychology
- 3.3 Scott Reynen, International Studies



**ORAL PRESENTATIONS - SESSION 4**

**2:15 – 3:45**

**ANDERSON AUDITORIUM (C101)**

**CHAIR: Matt Oswald**

- 4.1 David Janashvili, Economics
- 4.2 Marty Gardner, Economics
- 4.3 Jeremy Sandford, Economics
- 4.4 Katie Hampson, Economics

**ORAL PRESENTATIONS - SESSION 5**

**2:15 – 3:45**

**BECKMAN AUDITORIUM (C102)**

**CHAIR: Jacqueline Stephens**

- 5.1 Denise Miller, Hispanic Studies
- 5.2 Alissa Hoffenberg, Hispanic Studies
- 5.3 Cynthia Czerwin, Sociology
- 5.4 Jennifer Ruhl, History

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

Presentations are 15-20 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

**PURCHASING POWER PARITY THEORY AND RUSSIAN EXCHANGE  
RATE DURING THE 1990'S**

Timofey Chekhoyev and Diego Mendez-Carbajo\*  
Department of Economics, Illinois Wesleyan University

As the new millennium begins, one of the important questions for the emerging global economy is the role that Russia will play in it. Since August 1991, Russia has been trying to liberalize its economy in its attempt to integrate into the World community. One of the first reforms of the "shock therapy" started in January 1992 by the new Russian government with the goal to make Russian economy more open to the outside world was to liberalize prices and establish a free currency market. With the later reform, for the first time since 1917, the Russian ruble became freely convertible to other currencies. This project will examine the behavior of the Russian/US exchange rate during the last decade and attempt to explain its fluctuations in terms of Purchasing Power Parity.

Oral Presentation O1.2

**THE RELATIONSHIP BETWEEN ECONOMIC FREEDOM AND  
SOCIO - ECONOMIC DEVELOPMENT**

Anisha Madan and Ilaria Durbal\*

Department of Economics, Illinois Wesleyan University

The concept of economic freedom is not a novel one in economic theory. Since the time of Adam Smith if not before, economists have believed that freedom to choose and supply resources, compete in business, trade with others, and secure property rights are central ingredients of economic progress. Adam Smith (1776-1937) explained how the invisible hand of the marketplace enhanced the wealth of nations. David Ricardo (1821-1912) advocated free trade as a means of producing economic growth. Milton Friedman said, "I believe that free societies have arisen and persisted only because economic freedom is so much more productive economically than other methods controlling economic activity".

Economic freedom has been linked to economic growth. It is a basis for determining why some countries perform better than others since it precedes and causes economic growth. However, merely studying the relationship between economic freedom and economic growth rates is not enough. Whether these benefits and "increased economic growth rates" translate into something real and make a significant contribution to socio-economic welfare of people is a matter of critical concern.

The aim of this paper is to determine if increased economic freedom leads to improvement in the quality of life. Indeed, if it does so then this paper will formulate an index of economic freedom and also examine which aspects of economic freedom most impact the quality of life. It will also be determined whether the pace of change in freedom matters. The empirical model uses an index to measure economic freedom. Socio-economic development is reflected in two indices: the human development index and the Gini coefficient, measuring life expectancy, education, standard of living and income inequality.

The results are conclusive; economic freedom is positively related to improvement in the quality of life. Policy implications from this research highlight the need for governments to formulate policies that increase economic growth and improve the quality of people's life. Socio-economic development is too critical to be ignored.

Oral Presentation O1.3

**THE CELLULAR DIVIDE: A COMPARATIVE ANALYSIS OF MOBILE  
PHONE USAGE IN SPAIN AND THE UNITED STATES**

Deborah J. Slezak and Michael Seeborg \*  
Department of Economics, Illinois Wesleyan University

The usage of mobile phones has dramatically increased in the past decade, narrowing the boundaries of size, space, and time. It is this “death of distance” that will be the single most important economic force shaping all of society over the next half century. The economic prosperity of the United States has contributed to the increase in this “luxury” telecommunication device, but how can the rapid increase in European countries with lower per capita incomes such as Spain be explained?

The purpose of this paper is to examine mobile phone usage and penetration rates in the United States compared to Spain. This research question will be addressed by analyzing determinants of supply and demand in the market structures of each country. An emphasis will be placed upon differing pricing structures within the two countries. Explanatory demand related factors include the availability and prices of substitutes and complements, and tastes and preferences. Supply-side variables include the impact of regulation and technology.

The paper concludes that an important reason behind the rapid growth in cellular mobile penetration that Spain recently experienced is due to the introduction of pre-paid pricing schemes in a country with a Calling Party Pays (CPP) pricing structure, coupled with the relative effects of the determinants of demand and supply in each mobile communications market.

Oral Presentation 02.1

AN ANALYSIS OF LUIGI DALLAPICCOLA'S *SICUT UMBRA*

Deborah Miller and Mario Pelusi\*  
School of Music, Illinois Wesleyan University

Luigi Dallapiccola (1904 – 1975) was one of the most accomplished Italian composers of the twentieth century. Dallapiccola was the first Italian composer to adopt the twelve-tone method of composition for his own music (a method created by the Austrian composer, Arnold Schoenberg). While Dallapiccola employed the twelve-tone method of composition, he was also influenced significantly by many of the stylistic characteristics in the music of Alban Berg and Anton Webern. Dallapiccola composed several operas and chamber music, but he is best known for his exceptional output of music for voice in combination with various orchestral instruments. He was also an influential teacher of several generations of Italian and American composers.

*Sicut Umbra*, one of Dallapiccola's later works, is a twelve-tone non-tonal composition for mezzo-soprano and instrumental ensemble (on poems by Juan Ramón Jiménez). Composed in 1970, this primarily through-composed four-movement work is an example of Dallapiccola's fully developed compositional technique. The composition is written for mezzo-soprano voice, piccolo, flute, alto flute, clarinet in Eb, clarinet in Bb, bass clarinet, violin, viola, cello, vibraphone, celesta, and harp. Each movement is scored for a different combination of these instruments, similar to Schoenberg's approach in *Pierrot lunaire*. It is not until the final movement that all of the aforementioned instruments are used. This composition exhibits many of the compositional characteristics common to much of Dallapiccola's music; for example: a highly sensitive and effective setting of the text; imitative polyphony (exact and varied); numerous changes in meter; frequent changes in tempo; many proportionate rhythms and polyrhythms, which create a sense of improvised music and ametric music; carefully balanced and varied textures; and precise instructions for performance (in addition to the musical notation).

My paper focuses primarily on the second movement, which is entitled *El olvido* (Forgetfulness) and is scored for mezzo-soprano, clarinet in Eb, clarinet in Bb, bass clarinet, violin, viola, and cello. Included in my paper are: a complete analysis of the twelve-tone structure of the second movement; a discussion of some of Dallapiccola's unique contributions to twelve-tone composition; descriptions of the some of structural properties unique to this composition; and explanations of the "structural mysteries" that I encountered when I first began my study of this music.

Oral Presentation O2.2

AUGUSTINIAN INFLUENCES ON THOMAS OF ENGLAND: LOVE, REASON,  
AND THE UNRULY WILL IN *TRISTRAN*

Charlene Recio and Dan Terkla\*

Department of English, Illinois Wesleyan University

Much discussion has taken place as to whether or not Thomas of England intended *Tristan* to be a public condemnation of adulterous relationships; the main piece of evidence specifically refers to the tragic ending of this romance and the death of the two lovers. However, to convict Tristan and Queen Ysolt for their love would imply that the two had control over this love; the love potion shared between them serves as a symbol for the lack of control they had over falling in love with each other. Rather than place blame on these two lovers, this study, through an exploration of 12<sup>th</sup> century perspectives on love, reason, and the unruly will, discards the notion of their choice to love and, instead, will focus on the inevitability of the lovers' tragic ending.

Although this study acknowledges the traditional battle between Love and Reason, I will also attempt to make the distinction between Love and lust. In *Tristan*, Thomas takes note of lust and bodily desire, only to show its relative unimportance in the story in comparison to the roles played by Love and Reason; bodily desire is usually associated with earthly dimensions, while Love and Reason take on a higher role that transcends any intrusion by lust. Although Tristan and Ysolt are, indeed, physically attracted to each other, their desire can be more accurately defined as love, rather than lust. Thus, the two are doomed to begin with, for desire can never be satisfied; desire feeds upon desire – to satisfy desire would be to end it.

Finally, this study will incorporate the unusual nature of Tristan's will, which is in concordance with itself. Unlike most human will, which is unruly in its nature, Tristan's will is at peace with itself; his reason (his mind) coincides with his love (his heart). In fact, some critics argue that Tristan's Love overpowers his Reason. For this reason, Tristan and Ysolt - who do not follow the conventional rules of society in which Reason is usually the victor over Love - are doomed to suffer, and inevitably, die in the name of Love.

Oral Presentation O2.3

OH, FOR SHAME: PUBLIC PERCEPTION AND PUNISHMENT IN  
CHRÉTIEN'S *CLIGÈS*

Kathryn L. Weber and Dan Terkla\*

Department of English, Illinois Wesleyan University

Medieval French romances suggest that societies depended on a system of honor and shame to keep every individual in his or her place and to draw a distinction between men and women. Society expected women to abide by the standards it established, just as it did knights, and failure to uphold these expectations led to public humiliation. Chrétien de Troyes's *Cligès* models these two sets of codes and illustrates, not only this culture of honor and shame, but also how society held women to higher standards and punished them more severely for failing to uphold those standards. Placing them under a greater degree of scrutiny kept women out of the public, male, sphere. The romance highlights the importance of public perception during the time and the difficulty that one—especially a woman—might encounter after facing shame and the importance of avoiding it at all costs.

Knights like Cligès and Alexander needed to prove themselves in battle and tournaments to fulfill society's expectations and in personal relationships, specifically those with the lady with whom they fall in love. Examples of knights punished for failing to uphold expectations, however, are few and far between. A lady, though, had greater worries. Punishment and thereby shame meant a lifetime of loss, as it does for Fenice in *Cligès*. We see this concern with public perception at the conclusion of *Cligès*, when Fenice's tribulations with adultery are revealed. Fenice comes as close as she can to becoming like Iseult, while avoiding being called "another Iseult." However, she ultimately ends up like Iseult regardless of her efforts and is therefore punished, though, Cligès, in a situation similar to Tristan, is not.

By considering this honor/shame culture in Chrétien's *Cligès*, we see a sort of social criticism. Society's demanding expectations of women prepare Fenice for failure, thereby reinforcing these expectations and guaranteeing more severe punishments for women. Through no fault of her own, Fenice continues the constant concern women must have for their public appearances for fear of an unrelenting punishment and shame.

Oral Presentation O3.1

**THE USE OF A GENETIC ALGORITHM TO EVOLVE NEURAL NETWORKS FOR A NATURAL LANGUAGE PROCESSING TASK**

Alexander Dimov and Hans-Joerg Tiede\*

Department of Mathematics and Computer Science, Illinois Wesleyan University

In this project a novel approach was taken for performing a natural language task. The task requires a neural network to predict the grammatical category of the next word in a stream of sentences. There are two main reasons why this task is interesting. In natural language processing, it is sometimes very difficult to determine the grammatical category of a word in a sentence when that word could belong to different grammatical categories depending on the context. For example, the word run can either be a noun or a verb in a certain sentence. The ability to correctly determine the category of the word can help a computer process natural language. In addition, the approach taken here to solve this task can lead to insights about the way the human brain learns and/or understands language.

A Genetic Algorithm, which is conceptually based on simple principles known from Genetics, was developed and utilized to evolve neural networks that were used to perform the task. Genetic Algorithms have been used with remarkable success to solve complex problems in a number of fields but not for this type of problem. In addition, networks were trained via a classic learning algorithm, called back-propagation, to perform the same task.

Since a Genetic Algorithm has not been used for this type of task, an implicit goal of this project was to show that it can be used. One of the other main questions addressed is whether learning (as in the case of training a neural network via back-propagation) and a search for an optimal solution (as in the case of the use of a Genetic Algorithm to evolve neural networks) differ and if so, how. Also, the underlying properties of the two different types of networks (depending on the approach taken to obtain them) were compared. Finally, issues about the computational complexity of the Genetic Algorithm were studied and discussed. These issues included the relationship between the input size (for ex. 10000 sentences) and the performance of the network developed via the Genetic Algorithm approach, as well as the way the network must change as the input changes in size and the task changes in complexity (i.e. as the grammar and lexicon change) while the optimal parameters (of the Genetic Algorithm) are used.



Oral Presentation O3.2

**THE EFFECTS OF A PARENT-CHILD COMMUNICATION  
ACTIVITY ON THE WORRIES OF SIBLINGS OF CHILDREN WITH AUTISM**

Sara M. Irwin and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

This study was designed to assess the effects of increasing autism-specific communication between siblings and parents of children with autism. Participants were 7-12 year-old siblings of children with autism and their parents. One group of parent-child pairs completed a workbook focused on autism-specific worries, while another group of parent-child pairs played board games together. The children in each group completed a questionnaire about their autism-related worries at the end of the activity. Results from past studies suggest that the workbook may help to decrease children's autism-related worries.

Oral Presentation O3.3

**LESBIAN SUICIDE AND GENDER IDENTITY IN INTERWAR JAPAN**

Scott Reynen and Thomas Lutze\*

Department of International Studies, Illinois Wesleyan University

Interwar Japan saw extraordinarily high rates of suicide among lesbian women. The only explanation of this phenomenon comes from Jennifer Robertson, who attributes the suicides to ideological pressures and specifically the pressure on women to conform to gender stereotypes. However, a study of the conditions of life for lesbian women in interwar Japan suggests that socially-standardized gender identities, as well as feminist critiques of such identities, generally arose from and further served to perpetuate a patriarchal and heterosexist economic system. Within such an economic system, and amidst fluctuations of industrial modernization, lesbian women were unable to sustain themselves and turned to voluntary death as an escape from the very tangible restraints of life.

Oral Presentation O4.1

**MARKET CONCENTRATION: THE EFFECTS OF  
TECHNOLOGY AND INDUSTRY SPECIFIC FACTORS**

David Janashvili and Robert Leekley\*  
Department of Economics, Illinois Wesleyan University

Market concentration is often viewed as an important indicator of monopoly power, which makes it a key aspect for analyzing antitrust and other cases. A good understanding of what market concentration is and how it arises is crucial to policy decision making, especially in today's world where large corporations often tend to dominate the business scene. This paper focuses on investigating how factors accounting for technological innovation and industrial specificity affect market concentration.

A variety of studies have been conducted on the affects of concentration on innovation and technology levels among industries. A majority of researchers conventionally agree that this relationship is positive. However, more recent data suggests that the relationship may be negative. Evidence suggests that there is also a reverse relationship between these two factors. In this study I hypothesize that high levels of technological innovations give rise to concentrations and that the magnitude of this affect varies among different industries. As a result, the proxy variables for innovation are constructed (R&D expenditures, number of researchers, net investments, wages). The control variables include industry size, growth, size variability and advertising intensity.

Neither of the empirical models used in the paper yields strongly significant results. This may be due to data unavailability problems, and consequently, weakness of some proxies. The final (weak) model provides general intuition and support to the hypothesis. Policy implications are discussed in the last section.

Oral Presentation O4.2

**CAUSES OF STOCK MARKET AND SECTOR FLUCTUATIONS**

Marty Gardner and Robert Leekley\*

Department of Economics, Illinois Wesleyan University

The stock market has been viewed as a proxy for the state of the economy. However, predicting changes in the stock market has not been an easy task. The Federal Reserve has the power to control, to some degree, the direction in which the stock market will move through monetary policy. While there are many variables that affect the stock market, my study focuses on variables that can be somewhat controlled, interest rates, inflation, real GDP, and consumer confidence. By understanding the relationship of how changes in these variables cause changes in the stock market, then we can effectively predict changes in the stock market. This can be useful in determining the future state of the economy. Furthermore, we need to understand how much of a change in these variables causes a certain amount of change in the stock market.

My study uses these four variables to predict changes in the stock market and the sectors in a rational expectations model. I found that these variables are very useful and significant in predicting future changes in the stock market and the three sectors I chose: consumer durables, consumer nondurables, and the financial. My results show that not only are these variables significant in predicting stock market and sector fluctuations, but the market is also very sensitive in slight changes in these particular variables. Given changes in these variables, we can accurately predict changes in the stock market. This is not only useful in determining the future state of the economy, but also can be very lucrative.

Oral Presentation O4.3

**ENGLISH LANGUAGE PROFICIENCY AND THE WAGE RATES OF  
MEXICAN IMMIGRANTS**

Jeremy Sandford and Michael Seeborg\*

Department of Economics, Illinois Wesleyan University

Since 1965, the US has seen increasingly large numbers of immigrants crossing its borders. A disturbing corollary to the recent explosion in immigration is the corresponding decline of immigrant wages relative to the wages of natives. As a prime example, Mexican immigrants outnumber any other national group while having one of the biggest relative wage gaps, earning on average 40% less than native workers do. Lack of English language ability may be the main barrier to Mexicans assimilating into mainstream US society. If this barrier is removed (or weakened), so to may be ethnic capital's negative influence on Mexican earning power.

I examine the effects of English language deficiency on the earnings of Mexican immigrants. I find that for immigrants with little or no acquired human capital there is no cost to English language deficiency. For immigrants with some measured human capital, the cost is considerable, often enough to offset the gain associated with that human capital. Moreover, immigrants who rate themselves as speaking English very well are rewarded in similar magnitudes to natives for their human capital acquisitions. My study suggests wage convergence between immigrants who speak English very well and natives, while those immigrants who cannot speak as well lag behind.

Oral Presentation O4.4

**MEASURING DEMAND FOR ILLEGAL DRUGS: DO PRICES MATTER?**

Katie Hampson and Robert Leekley\*  
Department of Economics, Illinois Wesleyan University

Despite Government efforts to control the proliferation of illicit drugs in this country, illegal drugs continue to burden both our society and economy. In 1998 alone, Americans spent \$11 billion on marijuana, \$39 billion on cocaine, and \$2.3 billion on heroin and other substances. In addition, billions of dollars are spent annually on incarceration, prevention, and rehabilitation for addicts and other drug users.

What causes people to use illegal drugs? How do the prices of drugs affect consumers' demand for them? This study addresses these questions by developing models to predict the elasticity of demand for marijuana, cocaine, and heroin. Separate double-log regressions are run for each of the types of drugs in order to test for differences in the patterns of demand among each of the drugs. In addition to looking at how prices affect demand for the drugs, the model also includes economic, demographic, and background variables that are used to see whether the same groups of individuals use all three types of drugs.

Oral Presentation 05.1

ANALYSIS OF LINGUISTIC FEATURES OF TWO  
ARGENTINEAN CITIES

Denise Miller and Christina Isabelli\*  
Department of Hispanic Studies, Illinois Wesleyan University

Throughout the centuries the Spanish language has evolved to include many dialects that slightly differ from the “standard” language as described by the Real Academia (Royal Academy of the Spanish Language). Each of these dialects distinguishes itself from others due to linguistic differences pertaining to phonology, phonetics, morphology, syntax, semantics, and/or pragmatics. The Argentinean Spanish dialect distinguishes itself from other Hispanic dialects and, like other languages, even contains its own regional styles, or variants. The two Argentinean variants to be studied here are those of San Francisco, Córdoba and Buenos Aires. Specifically, I will focus on the tendencies of the use of the: (a) periphrastic future, *voy a comer* ‘I will eat,’ and (b) the more archaic morphological future, *comeré* ‘I will eat,’ a preference that varies among the Spanish-speaking dialects. The purpose of this study is to examine the linguistic features in the oral production of native speakers and determine the extent that the production of verbs pertaining to the future is influenced by the gender, age, and regional situation of the speaker.

The subjects of this study are native Argentinean citizens between the ages of 10 and 75. The subjects were chosen to equally represent gender and three age groups. Data was collected and analyzed from middle or middle-upper class speakers that did not have significant linguistic influences from other languages. Additionally, subjects were examined from the two aforementioned cities to test for variances pertaining to regional situation or idiosyncratic tendencies. Buenos Aires is Argentina’s capital, with many international influences, while San Francisco, in the province of Córdoba, is a remote agricultural and industrial town. The comparison of data from both towns will demonstrate to which extent the aforementioned linguistic tendencies vary on a sub national level.

The subjects participated in an audio tape-recorded half an hour session with the investigator, which included a series of informal open-ended questions that aimed to elicit responses in the future tense. Upon my return to the United States, the recordings were transcribed and analyzed for instances of concurrence of different future tenses.

The findings show that the future and near (morphological and periphrastic) future tenses are used interchangeably with a bias toward the use of the periphrastic future tense. Furthermore, preliminary findings indicate that although there may exist some minor differences in verb usage based on gender and age, there are no substantial differences that can be attributed to the regional situation of the speaker.

Oral Presentation O5.2

**SER AND ESTAR: A CHANGING COPULA IN A GUADALAJARA,  
MEXICO SPEECH COMMUNITY**

Alissa Hoffenberg and Christina Isabelli\*

Department of Hispanic Studies, Illinois Wesleyan University

In this study I have examined the process of linguistic change in a monolingual Mexican speech community, specifically that of the increased use of the verb *estar* in place of *ser*, in the Spanish copula meaning 'to be,' in the context of 'copula + adjective.' This project is a replication of the study that was conducted in Morelia, Michoacan by Gutierrez (1997), who carried out his research "in order to explain the variation between these two forms (*ser* / innovative *estar*)." It is recognized that the choice and use of these two verbs has changed throughout the history of the language and is continuing to change. The question I have posed in this investigation concerns the reason underlying this transformation. My preliminary findings support recent speculation that the use of this copula is in fact transforming in the Spanish language. Furthermore, my initial conclusions concur with those of Gutierrez in that this change is attributed to the natural evolution of the language, and is independent of the influence of the English language. However, I argue that the change that is occurring is not the emerging of a new or "innovative" use of the verb *estar* as Gutierrez calls it, but rather, it is simply an increase in it's various prescriptive manifestations where the use of *ser* has historically been more prevalent.

Works Cited

Gutierrez, M. J and L. F. Reyes, " 'Ser' y 'estar' en el habla de Michoacan, México." Nueva revista de filología hispánica. 45, no. 1, (1997): 154 –158.



Oral Presentation O5.3

**HEAD START TEACHERS AND THEIR USE OF  
MULTICULTURAL EDUCATION**

Cynthia Czerwin and Teodora Amoloza\*  
Department of Sociology, Illinois Wesleyan University

Multicultural Education is a philosophy that uses a child's culture in the classroom. It was developed in response to disparities between the academic achievement levels between minority and white students in the United States. Head Start, as a program whose clients are 70% minority, should be using a multicultural philosophy in the classroom. However, the United States has a history of using education as a tool to assimilate immigrant and minority cultures into the dominant culture. This study reviewed Head Start policies and literature, observed seven Head Start classrooms, and interviewed seven Head Start teachers in Bloomington-Normal and Joliet, Illinois to determine in what ways and if Head Start has implemented multicultural principles into the classroom. What was found is that while Head Start is interested in implementing multicultural principles, Head Start cannot yet be classified as using a multicultural program to teach their diverse clientele.

Oral Presentation O5.4

THE CATHOLIC CHURCH IN THE CHINESE REVOLUTION

Jennifer M. Ruhl and Thomas Lutze \*  
Department of History, Illinois Wesleyan University

It is well documented that the Chinese Communists subjected the Catholic Church to various persecutions during the revolution, and that has often been attributed to the ideological conflict between the Vatican and Marxism. This research, however, has shown that the Catholic church became a target because of its practices dating back to the 1800s. Before the Communist victory in 1949, the Church secured its position in China by threat of military force from the West, came to own vast amounts of land and other property, and reinforced the Confucian social structure that served to virtually enslave the Chinese masses. The Church's frequent denunciation of communism, apparent cooperation with the Nationalist Party, and in the 1950s, its association with the United States and other Chinese opponents in the Korean War reinforced these practices. The Church's opposition to the Communist Party was threatening because it was more than an ideological difference; its opposition was a defense of the things the Party was attempting to eliminate from China – feudalism and imperialism.

**POSTER SESSION A**

**9:00 - 10:00 a.m.**

Odd-Numbered Posters

**POSTER SESSION A  
ANTHROPOLOGY SECTION**

Lettered Posters A through K

**POSTER SESSION B**

**1:15 – 2:15 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.

Poster Presentation P1

DERIVATIZATION OF KEGGIN-TYPE POLYOXOMETALATES

Joseph B. Binder and Rebecca A. Roesner\*

Department of Chemistry, Illinois Wesleyan University

Polyoxometalates (POMs) of the Keggin structure,  $[XM_{12}O_{40}]^n$ , are large metal-oxygen anions. They have shown significant antiviral activity, but failed in clinical trials due to their toxicity at the necessary dosages.<sup>1</sup> However, improving their bioselectivity through the attachment of appropriate ligands might decrease the required treatment levels and increase the POMs' therapeutic utility.

We have worked to attach organic ligands to lacunary Keggin ions ( $[XM_{11}O_{39}]^n$ ), POMs in which a W-O group is missing, leaving a hole into which another metal atom may be inserted. From  $[PW_{11}O_{39}]^{7-}$ , we have successfully synthesized  $[PW_{11}O_{39}RhCH_2COOH]^{5-}$ , in which a rhodium atom bonded to a carboxylate group has entered the vacancy. Next, we modified the organic ligand by forming an amide bond to produce  $[PW_{11}O_{39}RhCH_2CONPh]^{5-}$ . Products have been characterized by  $^1H$  and  $^{31}P$  NMR. We plan to extend this chemistry to include other, more biologically relevant amines.

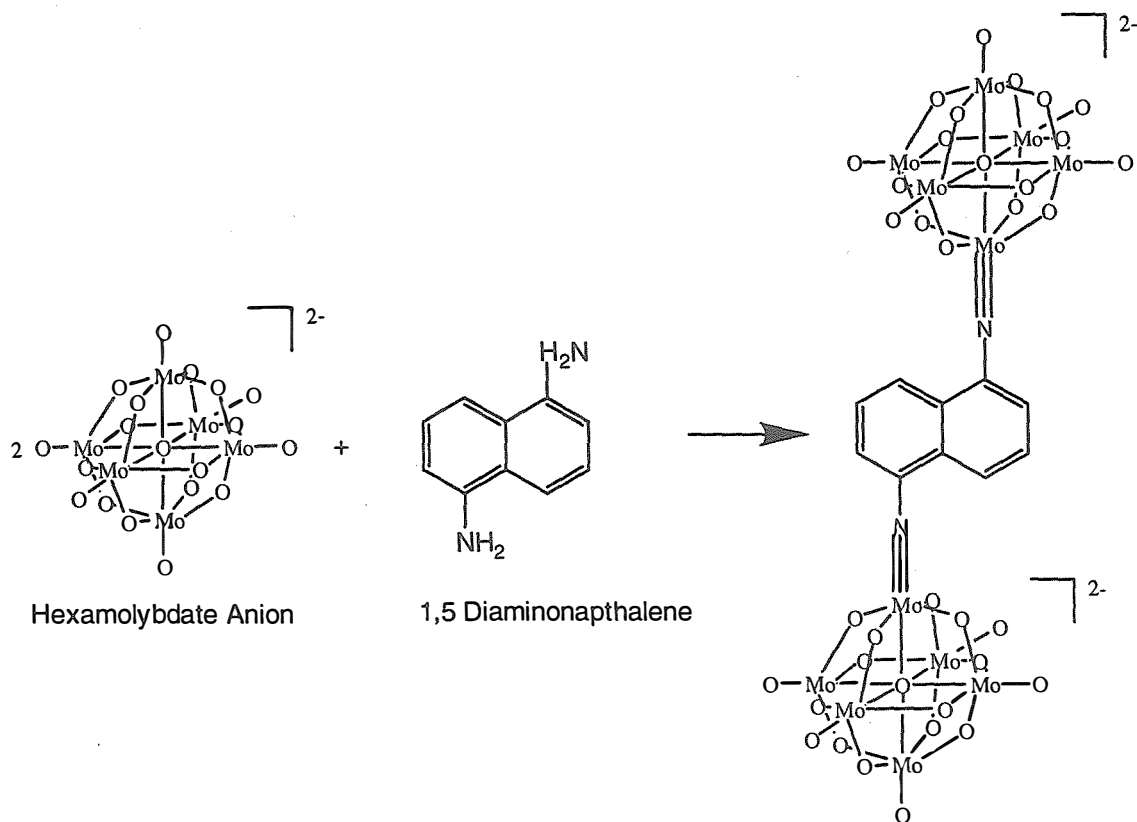
<sup>1</sup>J.T. Rhule, C.L. Hill, and D.A. Judd, "Polyoxometalates in Medicine," *Chem. Rev.* **1998**, *98*, 327-357.

Poster Presentation P2

SYNTHESIS OF HEXAMOLYBDATE COMPLEXES WITH DIFUNCTIONAL AMINES

David H. Aggen and Rebecca Roesner  
Department of Chemistry, Illinois Wesleyan University

Polyoxometalates, highly symmetric transition metal oxide clusters, are known to exhibit anti-viral activity. Modification of polyoxometalate compounds, through the addition of pendant organic groups, may enable the pharmaceutical targeting of diseased cells, which express specific biological macromolecules. Our research involves the synthesis of a naphthalene-hexamolybdate adduct from two equivalents of the hexamolybdate ion ( $\text{Mo}_6\text{O}_{18}^{2-}$ ) and 1 equivalent of 1,5 diaminonaphthalene. Dicyclohexylcarbodiimide was utilized to facilitate the reaction, producing dicyclohexylurea as a byproduct.<sup>1</sup> This reaction was repeated several times, using different conditions, and the products were characterized by  $^1\text{H}$  NMR spectroscopy. Downfield shifts of the aromatic, naphthalene resonances in these spectra suggest that the desired molybdenum-nitrogen bonds are forming. Yield and purity have been variable. Attempts to crystallize polyoxometalate compounds of this kind have produced spiny crystals, unsuitable for x-ray diffraction. We hope to explore other methods of purification and crystallization as our research continues.



Poster Presentation P3

**DEMAND ELASTICITY AND COMMODITY SUBSTITUTABILITY IN  
SIMULATED ECONOMY**

Amy Attivissimo and James D. Dougan\*

Department of Psychology, Illinois Wesleyan University

Hursh (1980) suggested that behavioral experiments with animals mirror many of the conditions found in an economy. In a Skinner box, rats supply their labor (bar pressing) in exchange for a commodity (food). Subsequently, numerous authors have found that animal behavior is well described by economic laws. The present project examined demand elasticity and commodity substitution. Twelve rats were exposed to a series of Fixed Ratio (FR) schedules in which the number of responses required for reinforcement increased each day. In some conditions, the rats were given free food immediately prior to the session. Demand elasticity was calculated by plotting the log food consumption (pellets per session) as a function of the log price (responses required per pellet). As predicted by economic theory, the availability of free food (a substitutable commodity) increased the demand elasticity of food consumption.

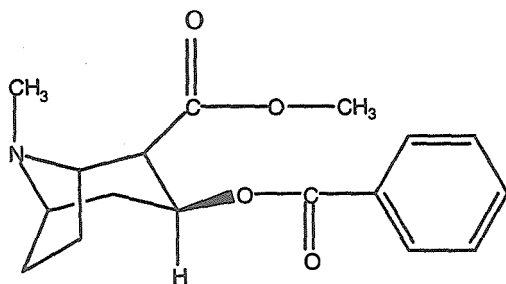
Poster Presentation P4

DETERMINATION OF A SIMPLER METHOD TO DETECT  
BENZOYLECGONINE IN URINE

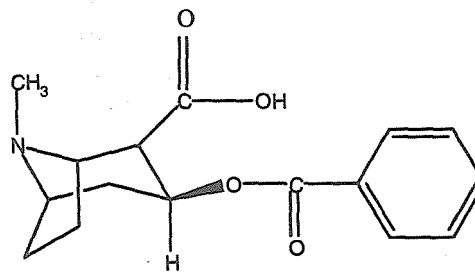
Kylee Billings and David Bailey\*

Department of Chemistry, Illinois Wesleyan University

Benzoylecgonine (BE) is the most abundant metabolite of cocaine found in the



Cocaine



Benzoylecgonine

human body. Analysis of BE in urine by gas chromatography/mass spectrometry is currently the method used to detect cocaine abuse. The current method is costly and time consuming, so an easier and more cost effective approach is being sought after. Because BE is a zwitterion, it is highly soluble in water and very difficult to extract from urine. To isolate BE in an environment where it is a charged molecule, the  $pK_a$  values were obtained experimentally, with a  $pK_{a1}$  of  $2.15 \pm .01$  and a  $pK_{a2}$  of  $11.41 \pm .01$ . Preliminary UltraViolet-Visible (UV-Vis) spectra were obtained to determine absorption bands of BE in various solvents. Based off of these spectra, dichloromethane was determined to be the best organic extracting agent. BE was synthesized, characterized, and purity tests were performed.

Future work includes further purification of BE, ion pairings, and finally extractions. Using the  $pK_a$  values, BE can be paired with another ion to form an ion pair at an appropriate pH. By extraction the ion pair into an organic solvent, it will be possible to detect small quantities of BE by UV-Visible spectroscopy.

Poster Presentation P5

**EXAMINING THE COGNITIVE AND PHYSIOLOGICAL PROCESSES  
UNDERLYING TRAUMATIC DISCLOSURE**

Anna Carlson and John Ernst\*

Department of Psychology, Illinois Wesleyan University

The aims of this research are to examine the cognitive processes and physiological reactions associated with the disclosure of a traumatic event. Cognitive-Experiential Self-Theory (Epstein, 1991; 1998) suggests that there are two separate modes of information processing. One is the rational mode that is based on logic and the other is the experiential mode that is based on emotions and heuristics. The way these two modes of processing may be related to disclosure was examined using undergraduate students. Participants engaged in one of four writing conditions; a trivial topic, the emotions surrounding a traumatic experience, the facts surrounding a traumatic experience, or both the facts and emotions surrounding a traumatic experience. Immediately after completing the writing task participants engaged in a modified ratio-bias task. The ratio-bias task consisted of 56 presentations of two trays with different amounts of red and white jellybeans. The amount of optimal choices on this task is thought to be related to the mode of cognitive processing the participant is in. Following this task, participants listed the thoughts they were having during the modified ratio-bias task. They then filled out a demographics questionnaire and the Rational-Experiential Inventory. Continuous cardiovascular measures obtained during all periods including a rest period prior to the writing task.

It is hypothesized that disclosure of emotions surrounding a traumatic event promotes the experiential system of information processing while both disclosure of the facts and disclosure involving a combination of facts and emotions promotes the rational system of information processing. The previous hypotheses were examined by measuring optimal choices made in the decision making task, number of trauma related thoughts in the thought-listing task, and the physiological responses of the autonomic nervous system during disclosure.



Poster Presentation P7

MASCULINE THREAT AND ANTI-GAY ATTITUDE

Chad Corbley and John Ernst\*

Department of Psychology, Illinois Wesleyan University

Anti-gay attitude is a large problem in the United States. In order to better understand this problem, we used Claude Steele's model of Self-affirmation to test the idea that threatening a man's masculine self-identity would lead to the expression of anti-gay attitude as a way of reaffirming the self-image.

In a pretest, college undergraduate participants completed a number of measures including the Personal Attributes Questionnaire (PAQ), a measure of self-perceived masculinity and femininity. Male participants were then contacted and asked to return for the second part of the study. This part included three conditions, one experimental and two controls. In all conditions, participants were hooked up to physiological recording equipment measuring heart rate, blood pressure, and blood flow through the heart, and a five-minute baseline was recorded. In the experimental condition, the *masculine threat* condition, participants took a 50-question, computerized test ostensibly measuring masculine knowledge that included questions about cars, sports and computers. The questions were administered in two fifty-minute blocks, and in between these blocks the participant saw false feedback on the screen reporting that he had scored below the average for male college students. The first control condition, the *general threat* condition, was identical except that the test was described as an assessment of general knowledge, and the questions were of a more general nature. The second control condition, the *no threat* condition, was exactly like the general threat condition, except the participant received no feedback in between the sets of questions. Physiological data was collected during this time. After the completion of the test, all participants completed a set of questionnaires including measures of attitudes towards gay men, women, Blacks, Arabs, fraternities and sororities, and other groups. It was hypothesized that participants in the threat conditions would report more negative attitudes on all the measures than those in the no threat condition, and that men in the masculine threat condition would report particularly negative attitudes towards gay men, especially if they tested highly on the masculine subscale of the PAQ. The physiological data was included to see if participants in the threat conditions showed the physiological patterns of threat, as validated by Tomaka et al. (1993).

Poster Presentation P8

**THE EFFECTS OF BACKGROUND FACTORS ON CHILDREN'S  
EDUCATIONAL ATTAINMENT ACROSS VARYING RACIAL GROUPS**

Megan De Serf and Michael Seeborg\*  
Department of Economics, Illinois Wesleyan University

This paper uses data from the National Longitudinal Survey of Youth (NLSY) to examine how background and familial factors affect children's educational attainment. Special attention is paid to the existence of educational gaps among children of varying racial groups and the impact of the background variables on each specific race. Multiple regression models are used to show how income, family size, female-headed households, and mothers' educational attainment affect children's educational attainment for each of the three racial groups. The results suggest that the background variables play a larger role in the educational attainment of white respondents than they do in the educational attainment of black or Hispanic respondents. Interestingly, this result, and other results reported in the study, does not support the hypothesis that these background variables have a greater impact on minorities' educational attainment than those of their white counterparts.

Poster Presentation P9

CONSTRUCTION OF A RADIOFREQUENCY PLASMA DEVICE

Matt Highland and Jeremiah Williams\*

Department of Physics, Illinois Wesleyan University

We have begun building a radio-frequency plasma device to study a wide range of plasma phenomena, including power coupling between the source antenna and the plasma and wave propagation. In this poster, we will discuss the design and construction of a high vacuum system utilizing a diffusion pump. We will also discuss the physics behind, and construction of, the radio-frequency plasma source, including the RF supply, matching network, antenna and background magnetic field.

Poster Presentation P10

**CZECH VOUCHER PRIVATIZATION: A CASE OF  
DECISION MAKING UNDER UNCERTAINTY**

Katia Hristova and Michael Seeborg\*

Department of Economics, Illinois Wesleyan University

The collapse of Communism in Central and Eastern European countries in the late 1980's led the countries into a drastic political, social and economic transformation. The fundamental economic restructuring consisted of three main processes: macroeconomic stabilization, market liberalization and privatization. A vital part of this triad, privatization was expected to restructure the ownership patterns held for the past 50 years, create a social class of entrepreneurs and, thus, change the manner of operation of enterprises and achieve greater economic efficiency.

In my research I examined a fundamental of economic restructuring in the Czech Republic - voucher privatization. A kind of large-scale privatization, it was conducted in order to redistribute property among the population in a socially fair way in a situation of complete lack of domestic financial capital. It was also thought of as a way to speed up the transition in the economy. In my study this process is characterized as decision making under uncertainty. Looking at the process as a game, I have explored how the rules and players change due to the intervention of international institution. Also, I analyzed asymmetric information in the privatization process led to concentration of ownership in the hands of a few individuals who have limited ability to initiate change in the enterprises. I have looked at the Investment Privatization Funds (IPF's) as an institution that arose as new player in the game representation of privatization. I discuss the information asymmetries in the process and analyzed the players' roles and strategies in voucher privatization.

Poster Presentation P11

**A QUANTITATIVE LOOK AT ENRICHMENT IN MALAYSIAN SUN BEARS  
THROUGH THE USE OF MATCHING AND CONTRAST**

Theodore Kostiuk and James Dougan \*  
Department of Psychology, Illinois Wesleyan University

Behavioral enrichment for captive wild animals has become increasingly important in the operation of zoos. A substantial amount of literature has developed studying enrichment. Unfortunately, many of these captive wild animal studies have failed to take advantage of modern behavioral theories and quantitative methods of data analysis. The present study was an attempt to merge the fields of quantitative behavior analysis and behavioral enrichment. The subjects were two Malaysian sun bears (*Helarctos malayanus*). A foraging task was designed using four "enrichment tubes" (two white, and two pink) constructed out of PVC pipe and loaded with a peanut butter/popcorn mix. The tubes were concealed within the exhibit, and the bears were then able to search out and open the tubes. The experimental design involved a contrast procedure that was made up of three parts: a baseline phase, a contrast phase, and a recovery phase. The baseline phase began with equal reinforcer in all tubes. In the contrast phase, the reinforcer was removed from one set of tubes. In the recovery phase, all of the tubes were again loaded with the same amount of reinforcer. Behavior was observed for half-hour sessions each day. The results of the study have implications for both the fields of quantitative behavior analysis and captive animal enrichment.

Poster Presentation P12

**BUBBLE MANIA OR NOT?**

Justin Leverton and Margaret Chapman\*

Department of Economics, Illinois Wesleyan University

From 1985 until 2001, the price of stocks in the NYSE increased exponentially. Financial analysts wondered if we were in a “new” economy or simply a bubble. Were the fundamentals of stocks changing to support the rapid growth or did a bubble exist? To compare these two viewpoints, my research will look at whether the fundamentals justify the increase in stock prices.

Are bubbles the result of the run up in stock prices or do the fundamentals support the high levels of prices? I will analyze the fundamentals of a stock price evaluation. In essence, I will be measuring the present and expected future earnings stream. By looking at the fundamentals of a stock price from past and expected future performance, the rational expectation model can be used to construct the fundamental price level of a stock.

My research will show that while rational expectation theory explains some of the growth in the stock market from 1985-2001, the majority of the price increase represents a deviation from the fundamental value of a stock. This deviation can be attributed to a stock market bubble.

Poster Presentation P14

**THE EFFECTS OF MALPRACTICE ON MEDICAL SPECIALTIES**

Mindy Mannlein and Robert Leekley\*

Department of Economics, Illinois Wesleyan University

In today's world, individuals highly utilize the law as a resource for blame and compensation. For economists, the increased volume and severity of tort litigation is a topic of concern because it means that vast amounts of wealth are tied up in transfer activity and thus removed from the production possibilities of the economy. Specifically, this paper examines malpractice lawsuits. The frequency and magnitude of malpractice claims have risen dramatically since the late 1960s, producing higher insurance premiums for doctors and leading to what some refer to as the "malpractice insurance crisis." With an estimated 50% of all physicians having to serve as either defendants or expert witnesses in malpractice suits during their careers, medical students are showing concern about this added risk to their future occupations. Therefore, this project concentrates on the effects of the growth of medical malpractice suits on the medical labor market. By running two separate regressions, low-risk and high-risk medical specialties are compared to see how sensitive they are to malpractice. While the medical malpractice system is supposed to provide incentives for physicians to take appropriate precautions in medical treatment, this paper finds that malpractice is actually acting as a supply shock in the medical labor market, causing risk averse medical students to shy away from more highly specialized fields.

Poster Presentation P16

**DEVELOPMENT OF A DATA ACQUISITION AND ANALYSIS SYSTEM**

Michael V. Mores and Jeremiah Williams\*  
Department of Physics, Illinois Wesleyan University

In order to study the plasma state, we have begun constructing a radio-frequency plasma device at Illinois Wesleyan University. In this poster, we present the data acquisition system that was written for this project using LabVIEW. We have also written routines to extract relevant information, such as plasma temperature, density, and magnetic field fluctuations, from standard plasma diagnostic tools such as the Langmuir Probe and the B-Dot Probe.

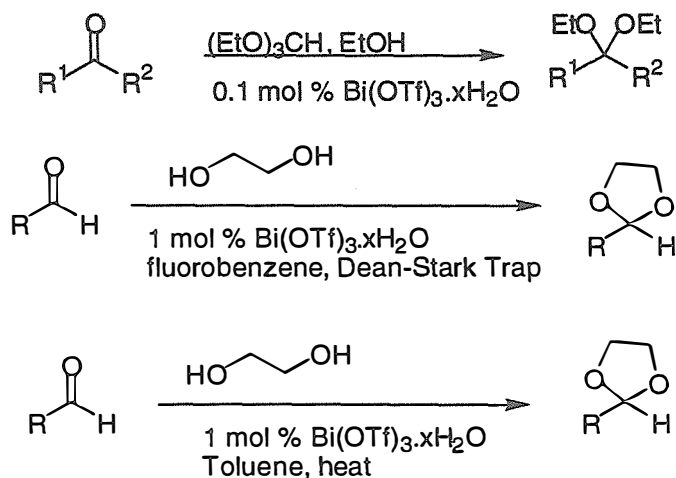


Poster Presentation P18

**A SIMPLE AND VERSATILE METHOD FOR THE SYNTHESIS OF DIETHYL  
AND CYCLIC ACETALS FROM ALDEHYDES AND KETONES USING  
BISMUTH TRIFLATE**

Bryce A. Nattier, Nick Leonard, Derek Freiberg and Ram S. Moham \*  
Department of Chemistry, Illinois Wesleyan University

Diethyl acetals are obtained in good yields by treatment of aldehydes and ketones with triethyl orthoformate and methanol in the presence of 0.1 mol %  $\text{Bi}(\text{OTf})_3 \cdot x\text{H}_2\text{O}$ . A simple method for the formation of 1,3-dioxolanes (cyclic acetals) that avoids the use of both benzene and a Dean-Stark trap has also been developed. Advantages of these methods include the use of relatively non-toxic catalysts and solvents. The results of this study will be presented.



Poster Presentation P20

**A THRESHOLD FOR INITIATING THE CANALIZED PHASE OF  
REPRODUCTION IN THE LUBBER GRASSHOPPER**

Jennifer Olson and Steve Juliano\*

Department of Biology, Illinois Wesleyan University and  
Illinois State University

The reproductive cycle of the lubber grasshopper, *Romalea microptera*, is believed to consist of two phases: a plastic (flexible) phase during which feeding rate affects reproductive timing and allotment, and a later, canalized (inflexible) phase, in which feeding rate has no effect on reproductive outcome. The duration and cues for initiation of this phase are currently unknown. We hypothesize that the initiation of this canalized phase of oogenesis begins when the level of hemolymph protein (derived from feeding) exceeds a threshold, and is therefore dependent on the amount of food eaten. Two mathematical descriptions of the timing of these phases of reproduction were considered: one in which the threshold is constant, and one in which the threshold decreases linearly with the amount of food consumed. Both models predict that the time to oviposition should be linearly related to the inverse of the daily food ration, with the slope of the regression estimating the threshold (in units of mass of food) and the intercept estimating duration of the canalized phase. We tested this hypothesis by assigning newly eclosed females to different daily rations of Romaine lettuce. We tested linear and quadratic regressions of age at oviposition versus the inverse daily food ration for both models to test the prediction of linearity. Linear regression was significant for the constant threshold model, with  $r^2 = 0.621$ . Quadratic parameters were not significant ( $P > 0.05$ ). Our results yield estimates of the duration of the canalized phase of 23.5 days and a threshold of 4.0 g (dry mass) of lettuce. Our data are thus consistent with our hypothesis of a simple, fixed threshold for food eaten that is the determinant of the initiation of the canalized phase of reproduction. Supported by NSF grant DBA-9978810 to SAJ.

Poster Presentation P22

**DETERMINING NEW CONSENSUS SEQUENCES FOR  
ALTERNATIVE PRE-mRNA SPLICING**

Benjamin Petro and David Bollivar\*

Department of Biology, Illinois Wesleyan University

It has been previously demonstrated that consensus for alternative pre-mRNA splicing occurs in the promoter and in the gene itself with respect to distance to the splice site. Mammalian genomic DNA sequences were aligned using BLAST2, the output parsed by a Perl script, and passed to a program that determines the probability of consensus for a sequence with respect to distance to a splice site or the TATA homology. Results of little significance and those that occur in genes that do not undergo alternative splicing in this output were then filtered out using another Perl script. Results will not only indicate the sequence for consensus, but also its location in the gene and the frequency with which it occurs, allowing us to infer what sequences are required for all alternative splicing genes, and which sequences regulate alternative splicing.

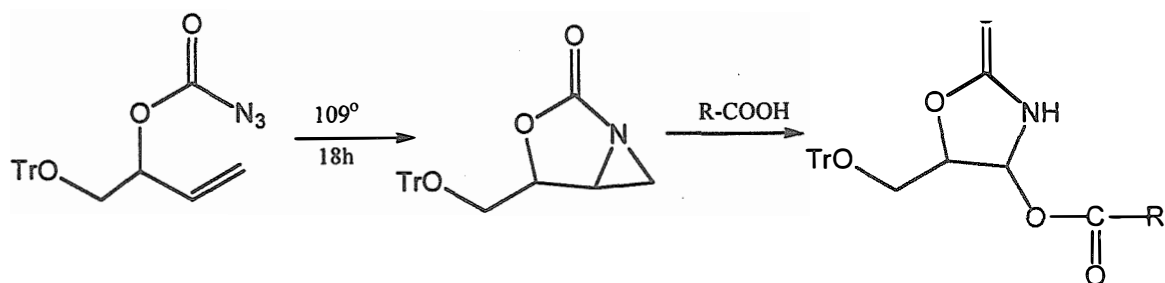
Poster Presentation P24

SYNTHESIS OF OXAZOLIDINONES VIA A BICYCLIC  
AZIRIDINE INTERMEDIATE

Elizabeth J. Sacho and Jeffrey Frick\*

Department of Chemistry, Illinois Wesleyan University

Oxazolidinones have been shown to have antibacterial activity, and are being further developed for use in biological systems. The focus of my research has been on the synthesis of oxazolidinones through a bicyclic aziridine intermediate. Thermolysis reaction of an azidoformate yields the bicyclic aziridine. Reacting the bicyclic aziridine with various carboxylic acids forms the various oxazolidinones.



Poster Presentation P25

**WITHHOLDING THE TRUTH: A STUDY OF TRENDS IN PERSONAL  
WRITING AMONG COLLEGE-AGED MEN AND WOMEN**

Arpita Shah and Vicki Magee \*

Department of Psychology, Illinois Wesleyan University

Research suggests the central purpose of girls' personal writing is not the resolution of separation from parents and others (Gilligan, 1992). Rather, for some girls, personal writing helps to "resist separation from others and from oneself, and in turn to strengthen resiliency" (Gilligan, 1992, p. 32). Personal writing is defined as "any type of writing that one does to reflect on one's life" (Magee, 1999). Very little is known, however, about the prevalence and frequency of personal writing among adolescent girls, as well as the types of personal writing that they do.

This study sheds new light on each of these aspects of girls' personal writing through a retrospective investigation of college-aged students' personal writing. To answer our overarching question, "What role does personal writing play in adolescent girls' personal writing?," the study's design necessarily posed questions to both men and women that allowed for data analysis by gender.

At a small, private, mid-western liberal arts university, 394 college-aged men and women volunteers were surveyed using a pencil-paper instrument, the *Personal Writing Questionnaire* (PWQ) (Magee, 1999). The PWQ asked 125 open-ended and closed questions in a wide variety of areas. This poster session presents a select set of statistically significant results in three areas related to women's use of personal writing: incidence, prevalence, and their most favored form of personal writing. In brief, when compared with the personal writing habits of the men and women in this study, our results suggest that women have a stronger tendency to have ever done personal writing ( $f(152.86)$ ,  $df\ 392$ ,  $p<.000$ ), write more often ( $f(35.00)$ ,  $df\ 380$ ,  $p<.005$ ), and use diaries for their personal writing ( $f(193.85)$ ,  $df\ 374$ ,  $p<.000$ ).

One additional gendered comparison had to do with an individual's intention of sharing personal writing with others. The results suggest that when compared to women, men are more likely to share their personal writing than the women in this study ( $f(47.91)$ ,  $df\ 362$ ,  $p<.000$ ).

These results have implications for clinicians, developmental psychologists, and educators who are interested in a full understanding of the role of personal writing in adolescents' lives.

Poster Presentation P26

**ILLUMINATION AND FOOD DEPRIVATION AS DETERMINANTS FOR  
HOARDING IN GOLDEN HAMSTERS**

Erin Smith and James Dougan\*

Department of Psychology, Illinois Wesleyan University

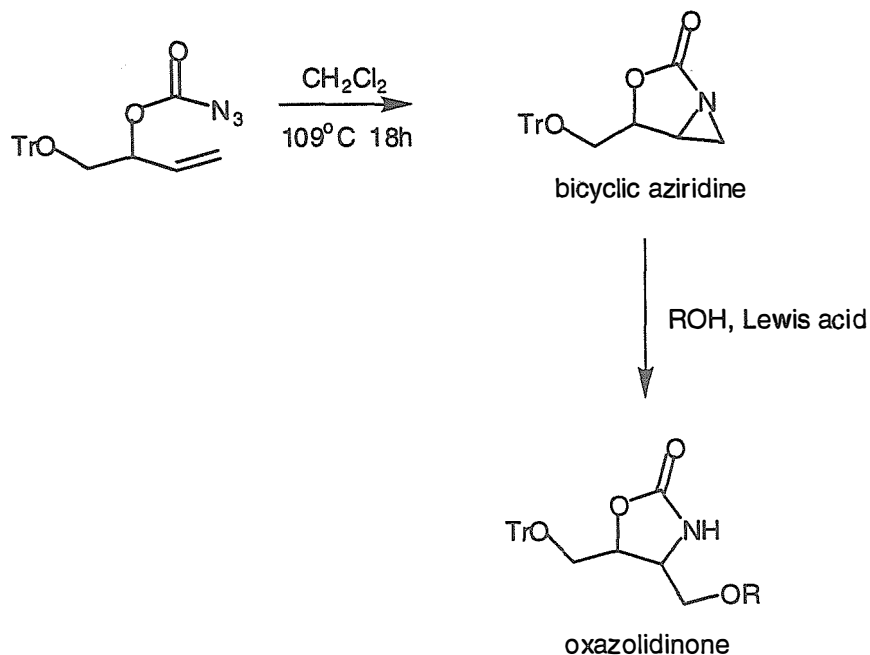
It is important for animals to adapt to changes in food availability in order to survive. Hoarding is one method of accomplishing this and the golden hamster (*Mesocritus Auratus*) is particularly adept at hoarding. Previous literature suggests a connection between hoarding and stress. Therefore, the present study examined the effects of illumination and food deprivation on the hoarding behavior of male golden hamsters. The within-subjects design allowed each of the 12 subjects to be tested in each of the 4 conditions: 1) illumination and food deprivation, 2) illumination and no food deprivation, 3) food deprivation and no illumination, and 4) no illumination and no food deprivation. The results indicated that subjects in the "no illumination and no food deprivation" condition hoarded the greatest number of pellets followed by "illumination and no food deprivation," then "illumination and food deprivation," then "food deprivation and no illumination". The data also show that both deprivation conditions produced more food consumption than the other conditions; this may account for the limited hoarding in the "food deprivation and no illumination" condition. The results suggest that stress may not play a significant role in the hoarding behavior of the golden hamster.

Poster Presentation P28

STUDIES ON THE LEWIS ACID CATALYZED REACTION OF A BICYCLIC AZIRIDINE WITH ALCOHOLS

Megan Stombaugh and Jeffrey Frick \*  
Department of Chemistry, Illinois Wesleyan University

Oxazolidinones are a class of compounds that have antimicrobial properties, and they can be used to treat bacterial infections. My research involves the synthesis of an oxazolidinone through a bicyclic aziridine intermediate. The three-membered ring in the bicyclic aziridine is opened by an alcohol in the presence of a Lewis acid to form the oxazolidinone. This procedure is versatile because there are a variety of alcohols and Lewis acids that can be used to open the ring, resulting in a number of different oxazolidinones.



Poster Presentation P30

**WHAT CONTRIBUTES TO A GOOD HOME-SCHOOL RELATIONSHIP?:  
EXAMINING THE RELATIONSHIPS BETWEEN TEACHERS AND PARENTS  
OF CHILDREN WITH AUTISM**

Lindsey Vacco and Linda Kunce \*

Department of Psychology, Illinois Wesleyan University

Educators have emphasized the importance of parent involvement in the educational process for decades. The definitions of parent involvement, however, have changed over time with a current emphasis on genuine school-parent collaboration where parents are seen as partners in their child's education. Such collaboration is especially crucial when the children have special needs, such as those on the autism spectrum. Autism spectrum disorders pose unique challenges to home-school relationships in part due to the child's communication and social impairments.

This study is part of a larger, ongoing study examining home-school relationships between parents and teachers of children with autism spectrum disorders. Participants were recruited from a local school district. Approximately 20 teachers and parents of children with an autism spectrum disorder completed a packet of questionnaires and a brief phone interview. Analyses were conducted to explore associations between reports of teacher-parent communication patterns, the child's classroom environment, and relationship quality. Specific questions of interest included: (a) are positive communication patterns related to perceptions of relationship quality?; (b) are specific teacher outreach behaviors related to parental perceptions of relationship quality?; and (c) are communication patterns and outreach behaviors related to perceptions of the classroom environment?

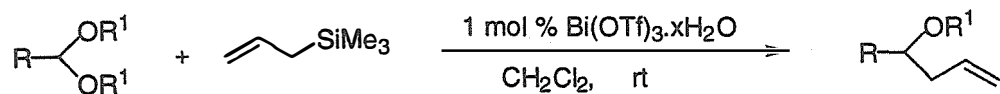


Poster Presentation P32

**BISMUTH TRIFLATE CATALYZED ALLYLATION OF ACETALS: A SIMPLE AND MILD METHOD FOR THE SYNTHESIS OF HOMOALLYL ETHERS**

Laura C. Wieland and Herbert M. Zerth and Ram S. Mohan \*  
Department of Chemistry, Illinois Wesleyan University

Bismuth triflate (1 mol %) is an efficient catalyst for the allylation of acetals using allyltrimethylsilane. The reaction proceeds smoothly at room temperature to afford the corresponding homoallyl ether in good yield. The mild reaction conditions, the low toxicity of bismuth salts, and the high catalytic efficiency of the system make this procedure particularly attractive for large-scale synthesis.



Poster Presentation P33

**DEVELOPMENTAL CONSEQUENCES OF EGG CAPSULE ATTRIBUTES  
AMONG SIBLING AND NONSIBLING EGG CAPSULES OF THE  
FRESHWATER SNAIL *LYMNAEA COLUMELLA***

Kristin Keller and William Jaeckle\*

Department of Anthropology, Illinois Wesleyan University

Among invertebrate species, female reproductive energy can be divided two ways, the production of many small eggs each with small amounts of energy or a few large eggs each with large amounts of energy (McEdward, 1988; Baur, 1994; Baur & Baur, 1997). It has also been demonstrated that variation in egg size and energy content among species leads to variation in juvenile fitness, as measured by juvenile survivorship (McEdward, 1988). No studies, however, examine the possible developmental consequences of egg size variation among sibling and nonsibling eggs of conspecific adult individuals. In our project, we examined newly-laid egg capsules from the freshwater snail *Lymnaea columella* (from single and different egg masses) for differences in “egg” attributes (e.g., total capsule volume, egg volume, and intracapsular fluid volume) and developmental characters (e.g., time to hatching from the capsule and juvenile size (shell length)). Our results show that while there was no significant difference in egg capsule volume or intracapsular fluid volume, there was a significant difference in egg volume among seven different egg masses. Differences were also detected in both development rate and juvenile size among four different egg masses. Juvenile size was positively correlated with capsule volume, egg volume, and intracapsular fluid volume, indicating that initial “egg” attributes have a positive effect on juvenile characteristics. The rate of development (time to hatching) was inversely correlated with egg size, which means that larger eggs develop faster than smaller eggs and therefore hatch sooner. Overall, our results show there are developmental consequences of egg size variation, both among and within egg masses of the snail *L. columella*.

Poster Presentation P34

**CHARACTERIZATION OF A MAJOR HEMOLYMPH PROTEIN (MHPb)  
AND ITS ROLE IN THE OVARIAN DEVELOPMENT OF  
THE LUBBER GRASSHOPPER**

Denise Lorenz and Given Harper\*

Department of Biology, Illinois Wesleyan University

Hemolymph in the lubber grasshopper *Romalea microptera* contains high levels (up to 100 mg/ml) of proteins that may be used to store amino acids. SDS-PAGE disclosed three major hemolymph proteins (MHPa1, a2, and b) with sizes of 68, 74, and 83 kDa, respectively. One of these, MHPb, was studied further. Gel filtration HPLC indicated a size of 310 kDa, suggesting that the native protein is a tetramer. MHPb was purified by anion-exchange HPLC and used to generate a rabbit antiserum. Western blots showed one major protein (~80 kDa). MHPb was present in the hemolymph of juveniles and adults. In adult females it accounted for an average of 25% of total hemolymph protein. Vitellogenin (Vg) and MHPb levels were measured using ELISAs. Hemolymph was collected from females fed high or low diets, which caused oviposition at 35 and 65 days, respectively. The average level of MHPb was greater in high-fed ( $12 \pm 1.6$  mg/ml) than in low-fed ( $4.4 \pm 0.6$  mg/ml) animals ( $P < 0.001$ ). In both groups MHPb levels rose to a maximum shortly before the rise in Vg levels that marks the onset of vitellogenesis. This maximum required about 50% more time to occur in low-fed animals. With the increase in Vg levels, MHPb levels dropped rapidly by 50-80%. A similar situation was observed in ovariectomized females. Levels of MHPb reached their maximum prior to the rise in Vg, and then dropped rapidly as Vg levels rose. These data support the hypothesis that MHPb is used to store amino acids that are utilized later, during vitellogenesis. In addition, the levels of MHPb appear to be regulated independent of the ovary. (Supported by NSF grant DBI-9978810 to DWB).

Poster Presentation P36

**U.S. AND INDONESIAN PROSPECTIVE PARENTAL INTERVENTION IN  
CHILD PEER CONFLICT**

**Kristina L. McDonald** and Doran C. French\*  
Department of Psychology, Illinois Wesleyan University

Parents frequently intervene in the conflicts that children experience with other peers. The work of Ross, Hastings and their colleagues has alerted researchers to the possibility that parents engage in such intervention in part to teach children lessons. Ross and her colleagues have focused on the role of such intervention for teaching children rules about possession and property rights.

Whereas property rights might be particularly salient in cultures such as the European-American subgroups in the US that emphasize individualism and market forces, we suggest that this might be less salient in other cultures. Many of the cultural groups in Indonesia emphasize collectivism, social harmony, and communal sharing, and we hypothesize that parental intervention might focus on instilling these values.

In this study, U.S. (N=71) and Indonesian (N=64) students responded to vignettes about object conflicts between a child (assumed to be their own) and a peer. Participants were asked whether or not they would intervene in the conflict and to explain their rationale. The responses were coded with high reliability.

Analyses revealed that U.S. participants were more likely than Indonesian participants to justify their action through the use of property rules (59.9 % vs. 40.1%). Indonesian participants more frequently than US participants justified their actions by either referring to the need to stop the immediate conflict and reinstate harmony (71.0% vs. 29.0%), or the importance of teaching children about harmonious relationships and getting along with others (57.4% vs. 42.6%).

These results suggest that the messages that parents portray when they intervene in child conflict is a reflection of the values considered important in that culture. We hypothesize that conflict intervention by parents may be a mechanism for the transmission of cultural values.

## Poster Presentation P38

FORMATION OF MACROCYCLES INVOLVING  
THE HEXAMOLYBDATE ION

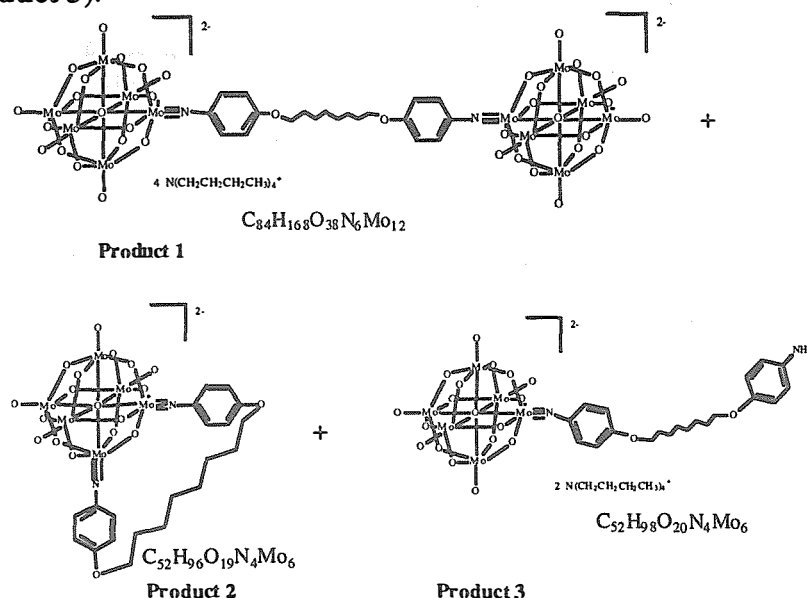
Elizabeth Myers and Rebecca Roesner\*

Department of Chemistry, Illinois Wesleyan University

Polyoxometalates are anionic metal-oxygen clusters of the groups V and VI transition metals in their highest oxidation states. These anions have large, symmetrical structures, and are known for a myriad of interesting and useful properties including catalytic activity, redox properties, applications in supramolecular chemistry, and anti-viral and anti-tumoral behaviors.

My research with polyoxometalates has focused on the synthesis of macrocyclic rings consisting of a diamine and the hexamolybdate ion  $[\text{Mo}_6\text{O}_{19}]^{2-}$  (Figure 1, Product 2). Work so far has involved synthesizing tetrabutylammonium hexamolybdate, synthesizing aryl diamines of varying carbon chain lengths, and reacting the hexamolybdate ion with different aryl diamines under varying reaction conditions. These reactions are carried out in an inert atmosphere environment and usually run for between 3-7 days.

A major obstacle in the synthesis of a macrocycle involving hexamolybdate is controlling the reaction so the hexamolybdate ion reacts with the diamine in the desired stoichiometric ratio and with the desired connectivity.  $^1\text{H}$  NMR spectra and FAB mass spectra show that only trace amounts of the macrocyclic ring are being formed in these reactions. The more prevalent products have structures that include a dumbbell shaped molecule consisting of two hexamolybdates attached on either end of a long organic chain (Figure 1, Product 1) and a monosubstituted organoimido hexamolybdate (Figure 1, Product 3).



**Figure 1:** Some observed products of the reaction of the hexamolybdate ion with aryl diamines.

Poster Presentation P40

**ABIOTIC FACTORS INFLUENCING BODY COLOR IN  
*MURGANTIA HISTRIONICA***

Jennifer Olson and Given Harper\*

Department of Biology, Illinois Wesleyan University

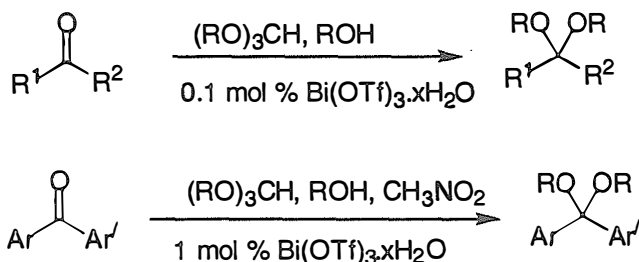
Many insects have developed the ability to thermoregulate by basking in the sun in order to maintain a higher body temperature. Because dark colors absorb more solar radiation, some insects will also alter their body color in colder weather in order to thermoregulate more efficiently. This experiment was designed to determine the effects of thermoperiod and photoperiod on the body color of the harlequin bug, *Murgantia histrionica*. Two populations were raised from the nymph stage. One treatment was exposed to simulated summer conditions with a 15:9hr, light:dark (L:D) photoperiod, and 30:24°C (day:night) thermoperiod, while the other treatment was exposed to simulated fall conditions with a 9:15hr L:D photoperiod and 22:15°C thermoperiod. After one generation, adults were examined for differences in the ratios of black to yellow body color. As predicted, the harlequin bugs in the first treatment had significantly more yellow color on their dorsal side than those in the second treatment ( $t=4.67$ ,  $df=9$ ,  $p<.000$ ). The increase of black color in the fall population is most likely facilitating their absorption of more solar radiation. This allows them to compensate for the lower temperature and the shorter duration of daily light.

Poster Presentation P42

A SIMPLE METHOD FOR THE FORMATION OF DIMETHYL ACETALS  
FROM ALDEHYDES AND KETONES USING BISMUTH TRIFLATE

Matthew C. Oswald and Russell C. Smith and Ram S. Mohan\*  
Department of Chemistry, Illinois Wesleyan University

Dimethyl acetals are obtained in good yields by treatment of aldehydes and ketones with trimethyl orthoformate and methanol in the presence of 0.1 mol % Bi(OTf)<sub>3</sub>.xH<sub>2</sub>O. A simple catalytic procedure for the formation of acetals of diaryl ketones has also been developed using 1 mol % Bi(OTf)<sub>3</sub>.xH<sub>2</sub>O. Advantages of this method include the use of a relatively non-toxic, inexpensive catalyst. The results of this study will be presented.



Poster Presentation P44

LENSLESS OPTICAL TWEEZING

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Optical trapping of a single particle can be accomplished by tightly focusing a laser beam with a microscope objective lens. By incorporating a diffractive optical element in the light path, a large number of particles can be controlled and assembled into a structure of interest. We are studying an alternative way of achieving the same goal: to organize micro- and nanostructures into larger assemblies using evanescent field laser tweezers.

Evanescent fields can be produced by total internal reflection due to the fact that boundary conditions require finite amplitudes in the second medium. This type of wave propagates parallel to the surface and decays exponentially in the direction normal to the interface over a distance of a few wavelengths. Under certain conditions an orders of magnitude enhancement in the intensity of the evanescent field can occur by coupling to surface plasmons. The resulting gradient forces are [we argue] large enough to trap particles. This technique should offer a significant improvement compared to the approach described above. Due to the large field enhancement the same laser has an orders of magnitude larger effective power that enables the trapping of a much larger number of particles. Moreover, because of interference effects, the spacing between the particles being trapped can be smaller than the wavelength of light that is used.

We are investigating the theoretical aspect of lensless optical tweezing by developing a simple mathematical model that describes this "light sculpting" technique and we are using these calculation to guide the experimental work. Some of the topics explored include studying surface plasmon resonances and establishing the limits imposed by both experimental considerations and theoretical predictions on lensless optical tweezing using evanescent fields.

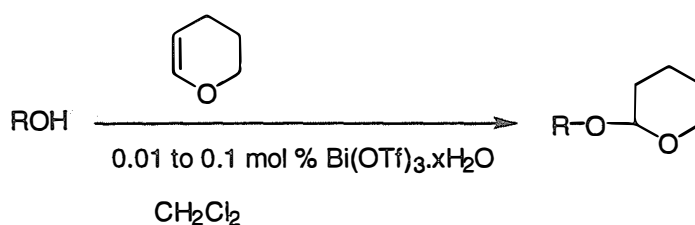


Poster Presentation P46

A HIGHLY CATALYTIC AND EFFICIENT METHOD FOR THE  
TETRAHYDROPYRANYLATION OF  
ALCOHOLS USING BISMUTH TRIFLATE

Jacqueline R. Stephens and Phillip L. Butler and Ram S. Mohan\*  
Department of Chemistry, Illinois Wesleyan University

Bismuth triflate (0.01 to 0.1 mol %) is a highly efficient catalyst for the tetrahydropyranylation of alcohols. The experimental procedure is simple and works well with a variety of alcohols. The catalyst is insensitive to air and small amounts of moisture, easy to handle and is relatively non-toxic. The highly catalytic nature of bismuth triflate makes this procedure especially well suited for large-scale synthesis. The results of this study will be presented.



Poster Presentation P48

COMPLEMENTATION OF *BCH<sup>E</sup>* *R. CAPSULATUS* WITH *CHL<sup>E</sup>* FROM THE  
CYANOBACTERIA *SYNECHOCYSTIS SP. 6803*

Kristin Tracy and David Bollivar\*

Department of Biology, Illinois Wesleyan University

The bacterium *Rhodobacter capsulatus* has the ability to live both aerobically and anaerobically, and it uses photosynthesis to survive anaerobic conditions. One gene essential for photosynthesis in this organism is *bchE*, which codes for an enzyme in the pathway responsible for making bacteriochlorophyll. The cyanobacterium *Synechocystis sp. PCC 6803* has the related gene *chlE*, which codes for an enzyme involved in the chlorophyll biosynthesis pathway. In this experiment, the functional relationship of these two genes was tested through complementation. A plasmid was constructed that contained the *Synechocystis chlE* gene attached to an S-tag sequence, and the plasmid was then transformed into a strain of *E. coli* (S17-1/\_ pir). This new strain of *E. coli* containing the *chlE* plasmid was then mated with a strain of *R. capsulatus* that had been engineered to lack a functional *bchE* gene and thus could not grow anaerobically. The transfer of the *chlE* plasmid and its ability to compliment the non-functional *bchE* gene was demonstrated by the ability of the daughter cells that resulted from the mating (the ChlEexp strain) to grow anaerobically, as well as the presence of an S-tagged band of the appropriate size on a Western blot of cell extracts. As of yet, enzymatic assays have shown no activity in cell extracts, but from the data collected so far we can see that the cyanobacterial chlorophyll gene *chlE* has the ability to replace the function of the bacteriochlorophyll gene *bchE* in *R. capsulatus*.

Poster Presentation P50

**DETERMINATION OF ORGANOCHLORINE PESTICIDE  
LEVELS IN *SPIZA AMERICANAC***

Amanda Wetzel and Jeff Frick\* and Given Harper\*

Departments of Biology and Chemistry , Illinois Wesleyan University

The Dickcissel, *Spiza americana*, nests locally in the Midwestern United States and in parts of Canada. During the winter months, these birds migrate south into specific sites in the central plains of Venezuela. While in Venezuela Dickcissels feed on grain and, in an effort to reduce the impact of Dickcissels on their fields, Venezuelan farmers have been observed spraying Dickcissel roosting sites with pesticides. The purpose of this study was to document and quantify organochlorine (OC) pesticides (e.g. DDT) and metabolite levels using gas chromatography in Dickcissels collected from Venezuela during February and March, 2000. Four OC compounds (p,p'-DDE, DDT,  $\gamma$ -BHC, and Endosulfan II) were detected in the ng/g range in eight of 29 (28%) Dickcissels. The most frequently detected compound was p,p'-DDE, which was present in six birds (mean level = 16.99 ng/g). The maximum level of any OC compound was 78.33 ng/g DDT in one Dickcissel. These findings suggest that while OC contamination is not widespread among Dickcissels, some individuals are still exposed to these compounds. Future studies should document the presence of other classes of pesticides (e.g. organophosphorous pesticides) in this species.

Poster Presentation P52

**EXTRACTION OF BENZOYLECGONINE FROM URINE**

Jeffrey T. Woodruff and David Bailey\*

Department of Chemistry, Illinois Wesleyan University

A method for extracting Benzoyllecgonine (BE) from urine is being developed which utilizes UV-vis spectroscopy as a means to determine cocaine abuse. BE is the most prevalent metabolite formed from the degradation of cocaine in the body. It has a half-life six times as long as that of cocaine, and can thus be detected in the body for longer periods of time. The most common method of BE detection used currently is Gas Chromatography/Mass Spectrometry. However, due to the derivatization involved, this is a costly method. Other methods have not been used because BE being is a zwitterion. Consequently, it is very hydrophilic and is difficult to extract from urine. A method is being developed in which hydrochloric acid is added to a solution of BE in urine to force BE into its cationic state. It can then be ion-paired with selected anions and extracted from urine using methylene chloride. A UV-vis spectrum is then obtained. This provides the experimenter with a positive or negative reading for cocaine use. If the reading is positive, further testing can be run utilizing GC/MS. However, by utilizing a UV-vis spectrophotometer to obtain a positive or negative reading, the cost of drug testing is greatly reduced.

Poster Presentation PA

**DEVELOPMENTALLY DISABLED: A LABEL, NOT AN IDENTITY**

Stefani Bonato and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

"I have a friend I want you to meet. He loves sports. You should see his room. Michael Jordan posters up on all his walls and awards from all the events he's won cluttering his room. Yeah, he really hates to lose. He's a hard worker too. Everyone loves him, especially the ladies." Would you still want to meet him if instead of the above, I had said, "I have a friend I want you to meet. He's developmentally disabled." Both descriptions fit the subject of this photo-essay. Ryan is a sports fanatic, a hard worker, and a social butterfly. And Ryan is also developmentally disabled; he has mosaic Down syndrome. Yet the first description most likely made you want to meet him more than the second one. Why is this? "Developmentally disabled" is a label that constructs highly impenetrable barriers between the people under that label and everyone else. But the ones building the walls are not the ones enclosed in them. The bricks are laid by those who aren't developmentally disabled. This essay is an attempt to knock down those walls. To allow those on the outside entrance into the normally closed-off category of developmentally disabled so that a reconstruction of that category can be achieved, a reformation that recognizes the similarities between those under the label and those who are not. And it is also a challenge. Will you continue to bury people under labels? Or will you recognize that even "developmentally disabled" is a limiting description that can by no means encapsulate all of a person's identity? I have a friend I want you to meet. The question is, do you want to meet him?

Poster Presentation PB

**STRIKE A POSE  
A PHOTOESSAY ON THE ROLE OF WOMEN BOWLERS IN THE  
BLOOMINGTON-NORMAL COMMUNITY**

Molly Jean Carpenter and Rebecca Gearhart\*  
Department of Anthropology, Illinois Wesleyan University

A wife and mother, Mary Jo began bowling in 1965 in order to “get out of the house.” In bowling, she like many other women of the Bloomington-Normal bowling community found a sport that is challenging and attracts friendly and supportive people. However, Mary Jo and fellow teammates in “The Lady Majors” bowling league express concern about negative misconceptions, such as bowlers are violent and drink heavily, that non-bowlers may have about bowlers. By method of discussion, observation, as well as collaboration with Mary Jo and “The Lady Majors” as to what visual and verbal representations they felt best portrayed their sense of place in the community, this photoessay investigates how stereotypes about bowlers lose their validity in light of how the sport perpetuates team work and support among bowling teams and in the evidence of bowlers extending their attitudes of team work and support to the entire bowling community as well as the greater Bloomington-Normal area.

Poster Presentation PC

**THE GRAYING OF AMERICA: A PHOTO-ESSAY OF OLDER  
AMERICANS IN THE WORKFORCE**

Lauren Kaintz and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

How old are you? As old as you look? As old as you act? When asked that question most people would answer by giving a number, their age in years. Growing old is a subject we all become more familiar with each day. Growing old in American society, as in any human society, is also a variable in a person's ability to sustain their self through his or her own form of work. Working through old age is significant to our society for which it is predicted that between 1996 and 2006, the percentage of 55-64 year olds will grow by 54%. With increased life expectancies of 73 years old for men and 80 years old for women, dynamic changes are occurring in the age structure of the working population. Older Americans are becoming a more prevalent portion of the workforce with increasingly later retirement ages resulting in secure, longer lasting and more rewarding careers. Remaining employed later in life is a meaningful and healthy alternative to early retirement for citizens like Elmo Quinn and Jackie Ahlers who have the ability to adapt their work capacity to fit their work environment based upon their individual needs. As a result, these older figures in the workforce provide a source of inspiration to all Americans and serve as role models to the workforce of tomorrow.

Poster Presentation PD

COMPANION ANIMAL VETERINARIAN: MANY JOBS IN ONE

Kristin Keller and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

Companion animal veterinarians are doctors who take care of cats and dogs. Most pet-owners are familiar with these doctors and take their canine and feline pets to veterinary offices on a regular basis. What these pet-owners may not realize, however, is the complexity of a companion animal veterinarian's job. Dr. Gretchen Reid, a local companion animal veterinarian, was kind enough to let me follow her around and take photographs of her workplace. By talking to Dr. Reid and observing her activities, I found out that a companion animal veterinarian's job requires many specialized skills. During the course of a day, Dr. Reid alternates between performing surgeries, which requires anesthesiology, surgery, and nursing skills; and seeing clients, which requires many other skills in order to examine animals, make diagnoses, and decide on treatment plans. Additionally, Dr. Reid must have these skills for both cats and dogs. Being a companion animal veterinarian is no small task—in fact, it is many jobs in one—and my photo essay is attempt to explore this in a visual way.



Poster Presentation PE

**401 S. EAST ST—  
GARBAGE COLLECTION TAKES MORE THAN A MAGIC WAND**

Chad R. Maxwell and Rebecca Gearhart\*  
Department of Anthropology, Illinois Wesleyan University

How would you feel if your garbage sat in your backyard for a week? How would you feel if everyday at 5:00AM you had to open a can from which maggots, roaches, and rats explode? Well everyday of the week, every grueling season of the year, through every nasty element mother nature conjures Kent Sigler picks up one to sometimes 100 pound bags full of everything from rotten food and kitty litter to broken glass and office waste. Kent Sigler is a garbage man. His work is undeniably some of the hardest and most intense labor one can be involved with today. Although many think that once they take their refuse to the curb the garbage fairy magically waves its wand and the garbage disappears the next morning, the process is neither that simple nor that magical. Kent Sigler knows better than anyone else that trash collection is about more than tossing some bags into a truck. It's about fitness, strength, and endurance. It's about service, organization, and precision; and, above all else, it's about the occupation found at 401 S. East St.

Poster Presentation PF

**MORE THAN MEETS THE  
EYE: FIREFIGHTERS IN BLOOMINGTON, IL**

Tim Palmer and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

What do firefighters do when they are not fighting fires? This presentation will show a behind the scenes look at the life of the firefighters on one particular shift. The focus will be on the variety of tasks that are performed at the station and how the firefighters incorporate the activities of daily life, such as eating meals and sleeping, into their 24 hour shift.

Poster Presentation PG

**“YOU DON’T WIN FRIENDS WITH SALAD”: DISPELLING THE MYTH  
OF THE TYPICAL VEGETARIAN THROUGH THE ANALYSIS OF  
THE LIVES OF FIVE YOUNG WOMEN**

Laura Pautz and Rebecca Gearhart\*  
Department of Anthropology, Illinois Wesleyan University

Who are vegetarians? Hippy chicks and health nuts? Try again. When asked what is the biggest issue she faces as a vegetarian, 20 year-old Allison answers “being misunderstood.” This is the story of five vegetarians, all college-aged women, all with various backgrounds and reasons for being vegetarian, and all misunderstood. This presentation’s aim is to break down the misconceptions of vegetarianism and provide insight into the true issues these young women face because of their personal decision to not eat meat.

Poster Presentation PH

HAIRSTYLISTS AS PROFESSIONALS

Michelle Ralston and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

Most people go to a hairstylist to get their hair cut, colored, permed, or styled. Most people also have a good relationship with their hairstylist. However, not too many people think of hairstylists as professionals, and even less understand the hard work and perseverance behind hairstylists. This is a photo essay on hairstylists. I have been lucky to spend a little time with a great group of professional hairstylists who have shared not only the “tricks of the trade,” but also their feelings and stories. One of the biggest rumors that people believe about hairstylists, is that the profession is a “cop out” to college or further schooling. This is far beyond false, hairstylists may only be required to take one year of schooling before they are pushed out into the world, but the education continues as new products, techniques, and styles come out. In fact, continuing education is now a requirement for all hairstylists. There is so much more to learn and know about hairstylists and hopefully you will take from this poster knowledge about hairstylists, and help to break the stereotypes of “hair dresser.”

Poster Presentation PI

**YOU WORK FOR GIRL SCOUTS?**

Janice Ruhl and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

Girl Scouts is an organization for girls, but there are many people behind the organization. Outside of the volunteers, there are full time employees who work over 40 hours a week for the organization. What exactly is it that these women do? How did they become interested in Girl Scouting as a career? What are their goals for the organization? What are their concerns for the girls they interact with? This poster will address these issues and put a face to the women behind the scenes of Girl Scouts.

Poster Presentation PJ

**POLICE OF NORMAL: SERVING WITH PRIDE**

Jamie Vilos and Rebecca Gearhart\*

Department of Anthropology, Illinois Wesleyan University

What more is there to police officers than just traffic regulation? What are the fundamental tools used by police officers to effectively and efficiently keep our cities safe? What is an officer's favorite part of the job? Illustrating the events of a ride-along with an officer of the Normal Police Department in his squad car, this photo essay attempts to answer these questions as well as create a sense of the community to which all the police officers of the NPD belong. The photo essay also shows the officer in roles in which one might not expect from him, but, regardless of expectations, he performs his job, serving with pride.

Poster Presentation PK

***THE VAGINA MONOLOGUES***  
**ILLINOIS WESLEYAN UNIVERSITY'S PRODUCTION OF  
ENTERTAINMENT AND EMPOWERMENT**

Lavanga Wijekoon and Rebecca Gearhart\*  
Department of Anthropology, Illinois Wesleyan University

When the student director and caste of IWU's production of Eve Ensler's Obie Award winning play, *The Vagina Monologues* set about staging the performance in February 2002, they were well aware of the magnitude of the task they were facing and the multitude of issues they were addressing. *The Vagina Monologues* is about the celebration of female sexuality by dispelling the mystery that shrouds a woman's "down there". It brings to light topics that are considered taboo such as menstruation, orgasms and homosexuality. Therefore, the IWU performers were taking a bold step by staging this play in front of our relatively conservative Bloomington community, not to mention their parents. Indeed the production team did encounter some resistance to their efforts, especially when advertising their performances. Along with breaking down walls and encouraging the full experience of being a woman, *The Vagina Monologues* addresses another global issue: violence against women. The V-Day Organization is an outgrowth of the worldwide performances of *The Vagina Monologues* and is now committed to ending violence against women by using the funds raised by staging the performances. The IWU production team funneled the donations they collected during their performances to RAWA, the Revolutionary Association of Women in Afghanistan. Thus this effort on the part of these IWU students was not limited to a mere theatrical performance but was part of a world-wide campaign to realize a violence-free future in which women will feel empowered and celebrated.

