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Introduction

Welcome to the first Juniata Liberal Arts Symposium. In the spring of 2005 the faculty Executive Committee received a petition signed by more than forty faculty members asking the committee to bring a resolution to the faculty meeting to set aside a day in the spring semester to recognize and honor the research and creative efforts of our students. In the fall of 2005, the faculty voted unanimously to cancel classes for one day in the spring of 2006 and to form a committee to organize such a day. The first issue, of course, was what to call it. We wanted the day to recognize traditional research but we also wanted it to include important and interesting student work which might not necessarily fall into a “research” category. Thankfully and mercifully we didn’t try to define what work was research and what wasn’t. Instead the committee elected to build a big tent which could cover traditional research, artistic production and various kinds of problem solving and applied work. The committee named this big tent the Juniata Liberal Arts Symposium.

Historically the day builds on the work of Tri-Beta, the biology honorary. It is important to recognize the importance of the work of Tri-Beta students in creating this day. For many years the students of Tri-Beta organized an annual research symposium in the spring semester. As it grew, faculty looked for ways to include more participants and to encourage more faculty and students to take time to see what their fellow students were doing. It is impressive. I invite you to take the day to listen to our students present their work, to ask them questions and to challenge them with your own ideas.

You will find the names of the committee members who organized the day listed in the program. Their leader was Assistant Provost, Jim Tuten. We owe him our thanks.

Jim Lakso
Provost

Schedule of Events

Competitive Arts

Ballroom Ellis Hall

9:00- 10:30

Visual Arts

Celina Isenberg Ceramics: Radiolarian Colanders Jack Troy

Sarah Anne Wharton Photography

Competitive Posters

Ellis Hall Ballroom

Biochemistry

9:00-10:30

Valerie Bukowski Alanine Aminotransferase Assay Ruth Reed

Ryan Porter Comparing the Helical Properties of Melittin and
N-Formyl Melittin Lorraine Mulfinger

Winnie ChingLam Wong Analysis of N-formylmelittin using SELDI-TOF MS Lorraine Mulfinger

Maria Welch Anti-microbial effects of Triclosan and Triclosan
derivatives on *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Escherichia coli*. Michael Boyle &
Richard Hark

Geology

9:00-10:30

Andrew McWilliams New homogenization data for fluid inclusions in fault
related quartz veins in central PA Geology Larry Mutti

Lori Hodel The Mapping and Analysis of Au-Ag Bearing Quartz
Veins in Ganarin, Ecuador Ryan Mathur

Allison Phillips Patterns in Nitrate Loads in an Agriculturally-Impacted
Stream and Implications for Best Management David Lehmann

Melissa Wilson Nutrient and sediment loading to Raystown Lake during
base and storm flow Sharon Yohn

Social Sciences I**9:00-10:30**

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|-------------------------------|--|---------------|
| Angela Davidson | Disordered Eating Behaviors and Body Image Disturbances in Athletes | Mark McKellop |
| Shannon Callahan | The Effects of Different Mortality Salience Stimuli on Attitudes Towards Outgroups | Mark McKellop |
| Joshua Scacco | America's Voter Registration Problem | Dennis Plane |
| Shane Fuhrman & Anthony Holly | Gender Differences in the Written Disclosure Procedure | Mark McKellop |

Biology**10:40-12:00**

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|------------------------------------|---|-------------------------|
| Amanda Cattoi | Evidence for Non-Immune IgG-Binding Proteins Expressed on the Surface of Ectromelia Virus | Michael Boyle |
| Tanner Bartholow Peter Patitsas | Correlation of membrane fusion events with secretion in the gastric mucosa | Jeff Demarest |
| Kari Dundore | Endocrine Disruptors: Are They Affecting the Eastern Fence Lizard? | Ruth Reed & John Matter |

Chemistry**10:40-12:00**

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| Meara Kauffman | Synthesis of Novel Helical Dibenzothiophene Derivatives | Richard R. Hark |
| Matt Reish | Pyridine N-oxide analogs to Jacobsen's catalyst | Peter Baran |
| Zuzana Baranova | Oxovanadium complexes with pyrazoles | Peter Baran |
| Han D. Nguyen | Complexation of phenanthroline monoxide and phenanthroline dioxide | Peter Baran |
| Katrina Kratz | Novel tricyclic ketones by tandem reactions chemistry | David Reingold |
| Marsha Loth | Progress toward the synthesis of the first delocalized semibullvalene | David Reingold |
| Wesley D. Carroll Cecelia A. Shertz | Synthesis and evaluation of peptide libraries for inhibitory activity against the Streptococcal enzyme IdeS | Michael Boyle Richard Hark & David Reingold |

Physical and Computer Sciences**10:40-12:00**

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|------------------------------------|---|----------------|
| Sarah Bender & Allison Earnhart | A Method to Determine the Minimum Energy Threshold and Coarse Low Energy Calibration for PVT Based Detectors | James Borgardt |
| Adam Bergstein & Joseph Chura | AJAX: Asynchronous JavaScript and XML | Gerald Kruse |
| James Nelson | Biometrics | Loren Rhodes |

Social Science II**10:40-12:00**

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|-----------------|--|-----------------|
| Haley Rothrock | Misperceptions regarding the Iraq War, Right Wing Authoritarianism, and Social Dominance | Philip Dunwoody |
| Devin Rice | Judgments of Potential Threat to U.S. Citizens | Philip Dunwoody |
| Cara D.Carpin | Groupthink in the Bush Administration's Decision for Operation Iraqi Freedom and symptoms of groupthink | Philip Dunwoody |
| Magda Sarnowska | Poland And Its Way Towards Or Out of Prosperity after the EU Accession | Brad Andrew |

Competitive Oral Presentations

Competitive Session I 9:00-10:30

10:30-10:40 Break

Competitive Session II 10:40-12:00

| Biology I | 8:00-9:20 | Neff Hall |
|---|---|---------------------|
| Karen Stringer | Research in Comics: Eye Movements Associated with Processing of Images and Text | Jay Hosler |
| Sarah Pierce | Effects of pesticide chemicals on reproductive development in the fence lizard, <i>Sceloporus undulates</i> | John Matter |
| Heather M. Hassel | Genetic Evaluation of Common Capture as an Indicator of Familial Relationship in White-Tailed Deer | Vincent Buonaccorsi |
| Amber Ziegler | Analysis of genomic localization of <i>Saccharomyces cerevisiae</i> Ty1 mobility events in mutant strains | Jill Keeney |
| Biology II | 9:45-10:30 | Neff Hall |
| Jason Shiring | Effects on various organisms from an introduction of koi (<i>Cyprinus carpio</i> ssp.) into an artificial pond | Todd Gustafson |
| Cecelia Shertz | Investigation of inhibitory potential of certain peptides on the Streptococcal enzyme IdeS | Michael Boyle |
| Katey Glunt Heather Hassel Mattias L. Johansson Michael A. Banks | Effects of oceanography, habitat discontinuity and geographic distance on fine-scale population structure of copper rockfish, <i>Sebastes caurinus</i> , along the Oregon coast | Vincent Buonaccorsi |
| Business and Economics | 9:00-10:30 | BAC C210 |
| Gerald Miceli | Sarbanes-Oxley: A Price Tag for Honesty? | Pat Weaver |
| Ryan Richards | In Search of Development in Guatemala | Brad Andrew |
| Magda Sarnowska | Poland – A Case Study of Economic Transition | Brad Andrew |
| Dan Grace | The Dogs of the Dow | Pat Weaver |

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|--------------------------------|--|-------------------|----------------------------|
| Chemistry & Physics | | 8:40-10:30 | Alumni Hall |
| Anna Butterfield | Progress towards the synthesis of a polyhydroxykekulene using tandem condensations | | Dave Reingold |
| Audrey Fry | The first tetradentate asymmetrical pyridine N-oxide ligand | | Peter Baran |
| Joseph D. Houck | Synthesis and evaluation of triclosan analogs | | Richard R. Hark |
| Rose Santangelo | Synthesis of asindacene-1,2,7,8-(3H,6H) tetraone, a possible latent fingerprint visualization reagent | | Richard Hark |
| Michael Best | High Precision Measurement of the Speed of Light | | Jamie White & Mark Pearson |
| History | | 8:40-10:30 | Good 202 |
| Laura Hebert | Patchwork, Pride, and Power: A History of Quilting Among African-American Women in the American South | | James Tuten |
| James C. Hayden | A Socio-Cultural History of the Juniata River Valley from 1700 to 1790 | | James Tuten |
| Janet Marie Howe | Where Protest Found a Cause: External and Internal Influences in the Mexican Student Movements of 1968 | | David Sowell |
| Emily O'Donnell | A Time of Desperation: The Confederacy's Quest For Papal Recognition | | James Tuten |
| Wesley Langenbacher | Terror on the Coal Fields: What Happened to the Molly Maguires? | | James Tuten |
| International Politics | | 9:00-10:30 | Good 302 |
| Neil Eicher | Political Youth Organizations in Russia | | Jack Barlow |
| Natalie Rizzuto | The Future of the EU: Turkey and Identity | | Jack Barlow |
| Ahmed Javaid Zeerak | State Formation, Governance, and Post-War Reconstruction in Afghanistan | | Jack Barlow |
| Becky Zajdel | Investigating Czech Roma Asylum | | Jack Barlow |

Competitive Oral Presentations Session II

| American Politics | 10:40-12:00 | Good 302 |
|---|--|-------------------|
| Tiana Mazzaresse | Affirmative Action: Is It History? | Jack Barlow |
| Jaime Dull | The Changing Face of American Conservatism | Jack Barlow |
| Brad Rossman | The Patriot Act: Beginning, Renewal, and Security vs. Liberty | Jack Barlow |
| Zachary Ausherman | NSA domestic surveillance and the FISA Act | Jack Barlow |
| Troy Beaver | Alger Hiss: Framed! | Jack Barlow |
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| Anthropology and Sociology | 10:40-12:00 | BAC C210 |
| Gerald Miceli Tom Kimmel Jesse Leonard & Will Russell | Diffusion of Cell Phone Attitudes and Behaviors | Marlene Burkhardt |
| Janet Marie Howe | Wal-Mart Traffic Exit Here: The Wal-Mart Image in Huntingdon, PA | Paula Wagoner |
| Lindsey Lang | The Gender Factor in Information Technology | Gerald Kruse |
| Heather Hassel | Do Environmental Stressors Lead to Non-Monogamous Mating Behaviors in the Lesser Ape (<i>Hylobates syndactylus</i>)? | Paula Wagoner |
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| Interdisciplinary Studies | 10:40-12:00 | BAC C212 |
| Christine Cutting | Bottled Water Education and Juniata Study | Andy Murray |
| Stephanie Tyler | Ecuador and the Struggle of Persons with Disabilities | David Sowell |
| Kathryn Funk | Generational Differences of Opinion regarding the Galapagos Fisherman/Conservationist Conflict | Donna Weimer |
| Matthew Newman | The Broadcast Flag | Donna Weimer |

Political Philosophy and Human Nature **10:40-12:00** **Good 202**

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| Christopher Fanelli | Competing Realities of Civil Society | Jack Barlow |
| Kelie Cummins | Can Classical Liberalism Stand Alone? | Jack Barlow |
| Joe Boyd | Rational Self-Interest as Human Nature and the Foundation of Graded Love | Xinli Wang |

Communication, Art History, and Literature **10:40-12:00** **Good 402**

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| Brittany Barbera Colleen Hughes & Michelle Krug | "Now You've Crossed The Line!": A Study of Relational Boundaries Within Recalled Conflict Episodes | Lynn Cockett |
| Abby Sener | Propaganda as Art: The Political Murals of the Bogside Artists | Karen Rosell |
| Holly B. Brown | Cindy Sherman and Suzanne Valadon: Both Sides of the Canvas | Karen Rosell |
| Steven E. Knepper | "Shoot Quick, and Slow:" Southern Sporting Values in William Faulkner's <i>Go Down, Moses</i> . | James Tuten |

Business Analysis and Strategy Development **9:00-11:30** **BAC C225**

Jim Donaldson

Team General Motors

Zachary M. Ausherman, Adam W. Butterbaugh, Justin L., Fritzius, Daniel G. Heinlein, Patrick R., Nestor, Zachary S. Sternberg

Team Supervalu

Rachel N. Jones, Katherine A. Korbich, Jesse W. Leonard, Jonathan M. Moody, Maria C. Samaniego, Nicholas F. Sefchok, Christi L. Spackman

Team Wendy's

John G. Boyer, Matthew S. Homman, Todd D. McConnell, David W. Saintz, Keith J. Sheridan, Chase M. Steffy

Team Delta Air Lines

Benjamin L. Bragdon, Jeffrey K. Detwiler, Paul B., Kozick, Nicole M. McLellan, Marcie L., White, Nichole C. Zinobile

Exhibition

Posters Sill Boardroom and Pheasant Lounge VLB 1:30-3:00

Biology

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|---|---|------------------------|
| Justin Neidig | Detection of Rad53 in <i>Saccharomyces cerevisiae</i> | Jill Keeney |
| Danielle Enriquez & Beth Schuelkens | Role of Dpp in Beetle Eye Development | Randy Bennett |
| Caleb Cassidy-Amstutz | Effects of Ty1 expression on gene expression in <i>S. cerevisiae</i> | Jill Keeney |
| Steve Beck & Josh Hatch | AFLP analysis of Candidacy Genes for the Speciation of <i>Sebastes carnatus</i> and <i>Sebastes chrysomelas</i> | Vincent P. Buonaccorsi |
| Kelsey Brewer & Karen Stringer | Significance of Color and Text in Reading Comics | Jay Hosler |
| Stephan Rinke, Jordi Farres Basiana, Nick Price, Joe Daft, Joe Boyd, Jessica Mann | Cloning genes involved in eye development in the Beetle | Randy Bennett |
| Jenn Doughty & Anjoli Sucy | Influences of Ecology on Metabolic Scaling | Douglas Glazier |

Psychology

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| Leslie Christman | The Liberal Academy: Examining the Effects of a Liberal Faculty on a Conservative Student Body | Philip Dunwoody |
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Physics

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| Nicholas Daddario | Determining the acoustic length end corrections for open-open Pipes | Jamie White & Mark Pearson |
| Dan Sidor | Developing a Non-Invasive Imaging System for Blood Flow through Small Vessels of the Nailfold | Mark Pearson |

Geology

Gregory Pierotti Re-Os Molybdenite Ages for the Antietam Reservoir Ryan Mathur

Biochemistry

Joe Boyd &
Naoko Masaki Digestion and purification of antibodies Lorraine Mulfinger

Chemistry

Jessica Mann Think, Evolve, and Act with the Juniata College SAACS Richard Hark

Brandon Bogusz Synthesis of Helical Dibenzothiophenedione Precursors Richard Hark

Robert Grimminger Critical analysis of variables used in modeling
of two dimensional gas chromatography Paul Schettler

Stephanie Guida Isolation of Glutamate: glyoxylate aminotransferase
from *Chlamydomonas reinhardtii* Ruth Reed

Kara George Development of Undergraduate Forensic Science
Laboratory Experiments: Application of Gas
Chromatography/Mass Spectrometry in Arson Investigation
and Drug Identification Paul Schettler

Jonilyn G. Longenecker Structure-Based Design of Peptidic Inhibitors of IdeS Jeffrey P. Wolbach

Katie O'Brien Melittin Tetramer Simulation with Linux Cluster using
NAMD and VMD Lorraine Mulfinger

Disease Monographs

Danielle Greenleaf Whipple's Disease David Hutto

Chrissy Weaver Multiple Sclerosis David Hutto

Cecelia Shertz Alopecia Areata David Hutto

Oral Presentations

| | | |
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| Documentary Shorts | 1:30-2:30 | Good 202 |
| “My Juniata” | | Kevin Clark |
| Ethics of Health Care | 3:00-4:00 | Good 322 |
| Ethical Triage for projected bird flu epidemic | | Janet Lewis |
| Financial Analysis and Financial Management | 1:00-3:30 | BAC C225 Pat Weaver |
| Team 1: Nick Sefchok and Dan Heinlein | | |
| Team 2: Laura Hardy, Gary Ondecko, Mike Gwiazdowski | | |
| Team 3: Brock Swartz, Kyle Allen, Dan Grace | | |
| Team 4: Jeff Detwiler and Travis Sissler | | |
| Team 5: Christopher Liong and Lori Martin | | |
| Team 6: Zach Shatto and Brandon Long | | |
| Nutrition, Math, Information Technology, and Business | 1:30-3:00 | BAC C210 |
| Magda Sarnowska | Banking Sector in Transition Economies: Case Study of Poland | Brad Andrew |
| Nate Drenner | Moodle: Online Course Management | Kathleen Jones |
| Matthew Katz | A Brief History of Conic Sections | John Bukowski |
| Keri LaBella & Tamara Wolfgang | Food Stamp Action | Debra Kirchhof-Glazier |
| Arts and Humanities | 1:30-3:00 | Good 402 |
| Anna M. Elias | French Culture in the Work Place | Michael S. Henderson |

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| Julie Kennedy | Sex, Love, and Anarchy: Lucy Parsons and Emma Goldman and their Stance on the "Woman Question" | David Sowell |
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| Organizational Communication | 1:30-3:00 | Good 302 |
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| Andrea Naranjo | Do groups make better decisions than individuals? | Lynn Cockett |
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| Zineb Gormat | Why Trust Matters In Organizations | Lynn Cockett |
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| Media Analysis | 1:30-3:00 | Neff Hall |
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| Ashley Hileman | Walking the Line: Analyzing the Continued Success of Johnny Cash Using the Traditional Approach | Donna Weimer |
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| Adam J. Stanley | A Nation Moved | Donna Weimer |
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| Joshua Scacco | Inaugural in Crisis: A Neo-Aristotelian Analysis of George W. Bush's Address in 2001 | Donna Weimer |
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| Laura Drews | Elder Scrolls IV: Oblivion: A Rhetorical Analysis of the Video Game Trailer | Donna Weimer |
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| Jill Malcolm | The Life of Wine: An Aristotelian Analysis of the Film <i>Sideways</i> (2004) | Donna Weimer |
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Abstracts

(Alphabetical by lead author's last name)

Kyle Allen (Pat Weaver) Yardley, PA
Jeffrey Detwiler, Williamsburg, PA
Dan Grace, Hopewell, PA
Mike Gwiazdowski, York, PA
Laura Hardy, Mt. Union, PA
Dan Heinlein, Ebensburg, PA
Christopher Liong, Pamplemousses, Mauritius

Brandon Long, Lebabnon, PA
Lori Martin, Ephrata, PA
Gary Ondecko, Northern Cambria, PA
Nick Sefchok, Holidaysburg, PA
Zach Shatto, Sherman's Dale, PA
Travis Sissler, Holidaysburg, PA
Brock Swartz, Hanover, PA

FINANCIAL ANALYSIS AND FINANCIAL MANAGEMENT

These students, in groups, will present their plan to invest the \$100,000 gift made to the college for students to invest. Each presentation will take about twenty minutes.

Zachary M. Ausherman (Jim Donaldson) York, PA
John G. Boyer, Belleville, PA
Benjamin L. Bragdon,
Adam W. Butterbaugh, Wellsville, PA
Jeffrey K. Detwiler, Williamsburg, PA
Justin L., Fritzius, York, PA
Daniel G. Heinlein, Ebensburg, PA
Matthew S. Homman, Hanse, PA
Rachel N. Jones, Harrisburg, PA
Katherine A. Korbich, Pittsburgh, PA
Paul B., Kozick, Dillsburg, PA
Jesse W. Leonard, Johnstown, PA

Todd D. McConnell, Altoona, PA
Nicole M. McLellan, Lake Forest, CA
Jonathan M. Moody, Camp Hill, PA
Patrick R. Nestor, Beaver Falls, PA
David W. Saintz, Titusville, PA
Maria C. Samaniego, Quito, Ecuador
Nicholas F. Sefchok, Holidaysburg, PA
Keith J. Sheridan, Ebensburg, PA
Christi L. Spackman, Warren, PA
Chase M. Steffy, Richland, PA
Zachary S. Sternberg, Lancaster, PA
Marcie L., White, Dauphin, PA
Nichole C. Zinobile, Orbinsonia, PA

ANALYSIS AND STRATEGY DEVELOPMENT FOR FOUR COMPANIES

Each team has been assigned an industry and a firm within that industry. The objective is to design a complete strategy for the company. Each team must write three comprehensive reports – a macroeconomic/macro-environment analysis, an industry analysis and a company analysis. Each report has a separate deadline. The third paper must include a comprehensive business strategy that addresses the company's situation. Contents of the written documents must be determined by the team, but are expected to reflect professional standards.

Zachary Ausherman (Jack Barlow) York, PA

NSA DOMESTIC SURVEILLANCE AND THE FISA ACT

The National Security Agency (NSA) in conjunction with the White House and the Justice Department have concluded that it is legal to "spy" on American citizens if in some way they are suspected of being involved in planning terrorist acts. This speech will examine this conclusion by using the framework of the Foreign Intelligence Surveillance Act, the War Powers Act, various constitutional precedents, and the increasing power of the Executive. The purpose will be to show evidence that the NSA program infringes on a US citizen's fourth amendment rights therefore making the program illegal.

Zuzana Baranova (Peter Baran) Trnava, Slovakia

OXOVANADIUM COMPLEXES WITH PYRAZOLES

Vanadium complexes have been studied for their potential use in medicine as anticancer drugs and for their insulin-mimicking characteristics. Our research focuses on vanadium complexes with pyrazole and its 4- and 3-substituted derivatives. Regardless of the used stoichiometry of reactants, only complexes of the composition $[V(O)(pzH^*)_4(SO_4)]$ ($pzH^* = 4-$ or $3-$ substituted pyrazoles) were isolated. Crystal structures revealed monomeric neutral species with four nitrogen atoms from terminal pyrazole ligands in an equatorial plane of the vanadium atom and two oxygen atoms (one from oxo and one from sulfato group) in apical positions. Electrochemical and spectroscopic characterization of prepared complexes is in progress. When the monomeric complex with pyrazole

reacted with a base, deprotonation of pyrazole resulted in formation of heptanuclear pyrazolato vanadium complex with a novel structural motif for vanadium complexes.

Brittany Barbera (Lynn Cockett) Bethlehem, PA
Colleen Hughes, Wilkes-Barre, PA
Michelle Krug, Cresson, PA

“NOW YOU’VE CROSSED THE LINE!”: A STUDY OF RELATIONAL BOUNDARIES WITHIN RECALLED CONFLICT EPISODES

This research describes individuals’ conflict behavior as oriented towards relational boundaries. By taking a symbolic interactionist approach, we seek to understand the meaning people ascribe to their world and how those meanings are negotiated through discourse. In this study, we see conflict as the site of interaction through which people assign meaning to their communicative behaviors. We conducted eleven interviews with participants who self-selected using a hybrid of semi-structured and narrative methods. Data were transcribed and analyzed using a variety of coding techniques. Preliminary findings suggest that relationship type, while unique to each participant, influences a person’s conflict behaviors and their reflections upon conflict outcomes. We argue that these perceptions mirror Mead’s notion of the “I” and the “Me” as components of the self, and that conflict is a particularly salient relational context in which to examine symbolic interactionism.

Tanner L. Bartholow (Jeff Demarest) Everett, PA
Peter Patitsas, Huntingdon, PA

CORRELATION OF MEMBRANE FUSION EVENTS WITH SECRETION IN THE GASTRIC MUCOSA

A single cell type, the oxyntic cell (OC), is responsible for both acid (HCl) and pepsinogen (PEP) secretion by the gastric mucosa of all non-mammals. Using scanning electron microscopy, we have shown that the stimulation of HCl and PEP secretion by *in vitro* *Necturus maculosus* gastric mucosa is accompanied by dramatically increased oxyntic cell apical membrane area. Transepithelial electrical resistance decreases in both cases in parallel with increased Cl⁻ secretion. The responses to histamine are consistent with the well known time course of membrane fusion leading to the insertion of H⁺/K⁺-ATPase into the apical membrane of OCs during the activation of H⁺ secretion. The initial transient effect of carbachol is consistent with the abrupt fusion of mature protein secretory granules during the activation of PEP secretion.

Troy Beaver (Jack Barlow) Bellwood, PA

ALGER HISS: FRAMED!

In 1948, HUAC began to investigate one of history’s most controversial cases. Ex-Communist Whittaker Chambers accused Alger Hiss, a former member of Franklin Roosevelt’s State Department, as being part of the United States Communist Party’s underground and a spy for the Soviet Union. Hiss, denying these allegations, was convicted of perjury and sentenced to five years in jail. Until his death in 1996, Hiss never stopped fighting to clear his name. His case has become a political dividing line into the 21st Century. With new evidence revealed over the past twenty years, this paper will attempt to show that through fraud and deceit, Hiss was convicted of a crime that he never committed.

Steve Beck (Vincent P. Buonaccorsi) Carlisle, PA
Josh Hatch, Jersey Shore, PA

AFLP ANALYSIS OF CANDIDACY GENES FOR THE SPECIATION OF *SEBASTES CARNATUS* AND *SEBASTES CHRYSOLMELAS*

The Gopher rockfish (*Sebastes carnatus*) and Black & Yellow rockfish (*Sebastes chrysomelas*) are thought to have only recently diverged into two separate species. The genes responsible for speciation are unknown. If speciation occurred in sympatry most loci are expected to show low divergence caused by genetic drift, while loci important to speciation form outliers due to sexual or natural selection. AFLP analysis is a DNA fingerprinting technique that allows for rapid screening of single nucleotide polymorphisms throughout genomic DNA. Once outlier loci are revealed, they can then be cloned, sequenced, and identified using bioinformatic techniques.

Sarah Bender (James Borgardt) York, PA
Allison Earnhart, Mercer, PA

A METHOD TO DETERMINE THE MINIMUM ENERGY THRESHOLD AND COARSE LOW ENERGY CALIBRATION FOR PVT BASED D

Radiation portal monitors (RPMs) widely utilize polyvinyl toluene (PVT) detectors which have high durability and low cost, but poor energy resolution. Quantifying the low energy sensitivity of these detectors presents unique obstacles since photon interaction in PVT is dominated by Compton scattering events. A method to gauge the sensitivity of PVT detectors by varying the lower level discriminator (LLD) setting and tracking the net count rate from a source has been investigated using ^{55}Fe , ^{109}Cd and ^{241}Am . Parameters in a Fermi function were adjusted to integral pulse height data and the derivative of the generated fit function was determined. A peak in the derivative of the count rate signified a photopeak, and provided means of assessing the low energy sensitivity.

Adam Bergstein (Gerald Kruse) Altoona, PA
Joseph Chura, Cherry Tree, PA

AJAX: ASYNCHRONOUS JAVASCRIPT AND XML

Internet developers have been searching for a way to construct web pages that will close the gap between the high-speed performance of a standard application and an internet application. Factors like speed, ease of use, efficiency, client-side execution, and lack of client-server communication have been differences between traditional applications run on a computer and internet-based applications. A new web development technique called AJAX is beginning to bridge this performance gap. AJAX stands for Asynchronous JavaScript and XML. AJAX allows web pages to be updated on a browser client without making a typical page request from a server by specifying what particular data on a page needs to be updated. This greatly diminishes the time it takes for a typical user to access a website because the site does not have to refresh the page every time there is a change made.

Michael Best (Jamie White and Mark Pearson) Camp Hill, PA

HIGH PRECISION MEASUREMENT OF THE SPEED OF LIGHT

A thorough introduction to error analysis is a necessary part of an undergraduate education in physics. This presentation will describe a relatively inexpensive experiment that allows students to investigate the effects of longitudinal modes of a laser. The speed of light was measured using a laser with an adjustable cavity. The laser was analyzed using a high-speed photo detector and digital spectrum analyzer. A thorough error analysis, including propagation of error and least squares regression, and discussion of methods used to increase precision will also be included.

Brandon Bogusz (Richard Hark) Belmar, NJ

SYNTHESIS OF HELICAL DIBENZOTHIOPHENEDIONE PRECURSORS

Using commercially available dibenzothiophene an important intermediate required for the preparation of dibenzothiophenediones was prepared. The first step involved bromination followed by transmetalation with butyllithium and quenching with dimethylformamide to form a dialdehyde. Knoevenagel condensation of the dialdehyde gave a dicinnamic acid derivative which was hydrogenated using a palladium catalyst to give the required saturated dicarboxylic acid. The diacid can be cyclized to give a mixture of linear, bent, and helical dibenzothiophenediones. These compounds are of interest as precursors to unusual latent fingerprint visualization reagents.

Joe Boyd (Lorraine Mulfinger) Harrisburg, PA
Naoko Masaki, Nara, Japan

DIGESTION AND PURIFICATION OF ANTIBODIES

We are currently assisting Dr. Jianfeng Zhu from Lampire in developing protocols for the digestion and purification of IgG, a group of antibodies critical to the immune system, from sheep and goat serum. The basic protocol is already well established; our task is to optimize the process to yield products which meet a variety of specifications. Starting from serum our first task is to purify the antibody using saturated ammonium sulfate. Antibodies and other proteins precipitate out of solution at various concentrations of ammonium sulfate. To optimize the purification for IgG we tested an array of ammonium sulfate concentrations and analyzed using SDS-PAGE gels. After purifying IgG we will then digest the IgG using pepsin. The digestion process will be optimized for enzyme to antibody ratio, pH, and digestion time.

Joe Boyd (Xinli Wang) Harrisburg, PA

RATIONAL SELF-INTEREST AS HUMAN NATURE AND THE FOUNDATION OF GRADED LOVE

As a substitute to the subjective label of good or evil, human nature can be considered to be the exercise of rational self-interest based on the claims made by both Mencius and Hsun Tzu. Depending on one's concept of human nature this conclusion can be arrived at in different ways. If human nature is to serve our own needs first with the guidance of intellect and thought, then human nature is rational self-interest. If human nature is primarily the feeling of commiseration or empathy then after considering genetic motivation, human nature is again rational self-interest. This rational self-interest from a genetic point of view naturally leads to graded love; one feels stronger affection towards close family and friends than people of other countries and regions. Also, the opposite of rational self-interest, if Mencius' and Hsun Tzu's theories of the nature of humanity and sages are to be satisfied, is rational selflessness.

Kelsey Brewer (Jay Hosler) Oakmont, PA

Karen Stringer, Bellefont, PA

SIGNIFICANCE OF COLOR AND TEXT IN READING COMICS

An eye tracking apparatus was used to trace a subject's eye movement while reading comics. From the eye tracking data, the amount of time spent viewing an image on a black and white comic page was compared to the time spent looking at pages with color. Three different comic pages were shown in black and white or in color. A fourth page was presented in one of four variations: black and white with text, black and white without text, color with text, and color without text. Eye movement was tracked to compare the amount of time spent with image versus text. Track time was then compared between black and white pages and color pages. Subjects completed a survey at the conclusion of each session to test for retention of material in the comics was better for color pages or for black and white pages. Survey results of color and text combinations were compared to determine the most effective combination for reader comprehension.

Holly B. Brown (Karen Rosell) Butler, PA

CINDY SHERMAN AND SUZANNE VALADON: BOTH SIDES OF THE CANVAS

Nineteenth century painter Suzanne Valadon and contemporary artist Cindy Sherman are unique, in that both women were influenced by their experiences as an artist *and* a "model." Through their artworks, lives, and aesthetic theories I explore how each employed different methods to express a critique of the traditions of the art world. Both artists attempt to change the anti-feminist traditions they experienced as children. But where Valadon endeavors to do this through a new, independent art form depicting women and their myriad of emotions, Sherman enters the media she is trying to subvert only to destroy it from the inside. Ultimately, however, both practices can be considered effective and innovative for their respective time periods.

Anna Butterfield (Dave Reingold) Tioga, PA

PROGRESS TOWARDS THE SYNTHESIS OF A POLYHYDROXYKEKULENE USING TANDEM CONDENSATIONS

Kekulenes are interesting because of their potentially unique aromatic characteristics. The purpose of this research has been focused on synthesizing a polyhydroxykekulene. This theoretically interesting molecule is believed to be more soluble than other kekulenes due to the hydroxy groups which surround the ring. It is possible that these hydroxy groups could also help in the kekulenes stack upon one another, forming a tube-like structure. The synthesis is believed to be possible through a series of tandem condensations using 4,4-dimethoxy-cyclohexa-2,5-dienone and 3,5-bis(methoxycarbonylmethylester)-4,4-dimethoxy-cyclohexanone. Previous research to perfect the methodology resulted in the synthesis a perhydro-phenanthrene-1,5,10-trione, a precursor to the desired kekulene. Current research is focused on synthesizing the starting materials which will then be used to make the polyhydroxykekulene.

Valerie Bukowski (Ruth Reed) Hastings, PA

ALANINE AMINOTRANSFERASE ASSAY

This activity assay is being used to test activity levels of L-alanine aminotransferase from *Chlamydomonas reinhardtii*. The current protocol has not been tested to see if the concentrations of LDH, NADH, alpha-ketoglutarate, and alanine are accurate. The concentration of these reactants needs to be accurate so that optimal activity readings can be obtained. I have tried varying amounts of each of these components in an attempt optimize the protocol and obtain the best activity readings.

Shannon Callahan (Mark McKellop) Woodbridge, NJ

THE EFFECTS OF DIFFERENT MORTALITY SALIENCE STIMULI ON ATTITUDES TOWARDS OUTGROUPS

This study examined the effect that cause and location of video death images have on attitudes towards immigration and homosexuals. There was a two by two design with *Cause* (natural or manmade) and *Location* (domestic or foreign) as the variables of interest. Participants' American and global identities were also considered potential variables. Participants viewed brief videos featuring footage from recent tragedies. Following mortality salience exposure, participants answered questions about their attitudes towards immigration and homosexuals in the United States. Neither *Cause* nor *Location* of the death images alone influenced attitudes towards immigration (ATI). There was an interaction: for domestic death images the cause was irrelevant for ATI but for foreign death images, participants held lower ATI when the cause of the tragedy was manmade. Social identity also influenced ATI, as those with low American identities or high global identities were more likely to have positive attitudes towards immigration. All factors were irrelevant for attitudes towards homosexuals.

Cara D. Carpin (Phil Dunwoody) Clarion, PA

GROUPTHINK IN THE BUSH ADMINISTRATION'S DECISION FOR OPERATION IRAQI FREEDOM

The Select Committee on Intelligence, U.S. Senate, concluded that groupthink was present within the prewar assessments of Iraq by the intelligence community. The evidence now indicates that the intelligence community and the Bush administration selectively used intelligence. Using Hart's revised version of Janis' Groupthink model, this study extends the possibility of groupthink to the Bush administration's decision to go to war in Iraq. We read Bob Woodward's book *Plan of Attack* to evaluate the groupthink hypothesis. This book is based on interviews Woodward conducted with all senior members of the Bush administration. The focus of the book and interviews is to explicate the decision making process that lead to war with Iraq. A variety of sources from individuals in the administration give initial qualitative support for all of the antecedents and symptoms of groupthink.

Wesley Carroll (Michael Boyle, Richard Hark and David Reingold), Everett, PA

Cecelia Shertz, Ebensburg, PA

SYNTHESIS AND EVALUATION OF PEPTIDE LIBRARIES FOR INHIBITORY ACTIVITY AGAINST THE STREPTOCOCCAL ENZYME IDES

IdeS is a highly specific cysteine protease that is secreted by group A *Streptococcus pyogenes*. The only known natural substrate of the IdeS enzyme is Immunoglobulin G (IgG). Solid-phase peptide synthesis utilizing Fmoc-chemistry on an automated synthesizer was used to create two libraries of potential competitive inhibitors. The two libraries were based on the known sequence of human IgG surrounding the putative IdeS cleavage site. Two peptides from the first library showed reproducible inhibitory activity, though neither of these compounds included the predicted cleavage site. The shared sequence of the two active peptides was further explored in the second library.

Caleb Cassidy-Amstutz (Jill Keeney) Hershey, PA

EFFECTS OF TY1 EXPRESSION ON GENE EXPRESSION IN *S. CEREVISIAE*

Transposons are mainly elements of the nuclear genome (though some have been found in mitochondrial DNA) that when activated create a copy of themselves. The most common of these in *S. cerevisiae* is the Ty1 element, elements have been shown to transpose via a reverse transcription process and similar to true retroviruses. Transposition events are regulated by the host genes (Scholes et al. 1449). Studies have shown through mutational screens that approximately 100 genes in *S. cerevisiae* are responsible for regulating the transposition event (Griffith et al. 867). Microarray analysis allows assay of all yeast genes for expression. In this study, the global expression of the control strain with no Ty1 versus the experimental strain with expressed Ty1 will be analyzed. The global expression analysis should provide additional insight into which host genes are involved in the regulations of Ty1 elements.

Amanda Cattoi (Michael Boyle) Elmora, PA

EVIDENCE FOR NON-IMMUNE IgG-BINDING PROTEINS EXPRESSED ON THE SURFACE OF ECTROMELIA VIRUS

Ectromelia virus, the causative agent of mousepox, is proposed to be a mouse model to study poxviruses. An immunoelectron microscopy study of the interaction of ectromelia viral particles and mouse and human antibodies was done. Gold conjugates with polyclonal and monoclonal mouse and human IgG and IgA were incubated with viral particles before placing the solution on a copper mesh grid to be visualized by electron microscopy. The virus

showed strong interaction with both mouse IgGs conjugated to gold while showing minimal reactivity with controls. Based on the binding of a similar number of gold particles/viral particle for conjugates generated with monoclonal antibodies to epitopes not expressed by the virus or polyclonal IgG, the observed binding would be consistent with interaction of antibody constant regions, possibly benefiting the pathogen.

Leslie Christman (Philip Dunwoody) Fleetwood, PA

THE LIBERAL ACADEMY: EXAMINING THE EFFECTS OF A LIBERAL FACULTY ON A CONSERVATIVE STUDENT BODY

This study examined perceived attacks and ostracisms on students by faculty members and other students. Results show that students who are Republicans report more perceived attacks and ostracisms than Democrats. Perceived attacks and ostracisms occurred more in the social sciences and humanities than in the natural sciences. Students with higher scores on the Dogmatism Scale, Right Wing Authoritarianism Scale, or Religious Fundamentalism Scale were more likely to report perceived ostracisms. More research needs to be done to find out if the perceived attacks and ostracisms are actually occurring, or if it's a matter of subjective course material or classes which force students to consider other ideologies.

Kelie Cummins (Jack Barlow) Huntingdon, PA

CAN CLASSICAL LIBERALISM STAND ALONE?

My thesis states that Classical Liberalism, as a moral and political theory, cannot be successfully applied to concrete situations. Although parts of this theory can be upheld, the pure theory of Classical Liberalism cannot stand alone. Supporters of Classical Liberalism not only believe in the importance of the individual and the limited role of government, they also argue that the tenants of Classical Liberalism are universally applicable. I intend to prove my thesis by using examples from the Nuremberg Trials and the Hague Conventions.

Christine Cutting (Andy Murray) Stow, MA

BOTTLED WATER EDUCATION AND JUNIATA STUDY

This presentation will focus on the issues surrounding bottled water, from regulations to recycling and practicality. It is a continuation of a class project for Water and Conflict from fall 2005. There will also be an investigation to the bottled water consumed on Juniata's campus and a student run survey to see whether fellow students could identify various types of bottled and tap water.

Nicholas Daddario (Jamie White and Mark Pearson) Yardley, PA

DETERMINING THE ACOUSTIC LENGTH END CORRECTIONS FOR OPEN-OPEN PIPES

The acoustic theory of pipes shows a mathematical relationship between the resonant frequency and length of a pipe. It is found that the length of a pipe needs a correction factor because the acoustic wave is longer than the actual length of a pipe. This correction factor is proportional to the radius of a pipe by the value of 0.61 as determined by past studies. Using PVC piping it is possible to calculate the value of the proportionality constant by measuring the radii, lengths, and resonant frequencies of pipes and recording the temperature at the time of data collection. Further studies to prove this theory will involve altering the original piping.

Angela Davidson (Mark McKellop) Littlestown, PA

DISORDERED EATING BEHAVIORS AND BODY IMAGE DISTURBANCES IN ATHLETES

Much of the literature on eating disorders in athletes looks at the collegiate athlete population in general without separating them by sport interest or gender. The purpose of this study is to investigate the relationship between body image disturbances and disordered eating behaviors among male and female lean sport and non lean sport athletes and nonathlete controls. It is hypothesized that male and female athletes will be more satisfied with their bodies as suggested by the findings of past research, and lean sport athletes, especially those in performance sports, will report more disordered eating and body image distortion than nonlean sport athletes and nonathletes.

Jenn Doughty (Douglas Glazier) Pittsburgh, PA
Anjoli Sucky, Hilton, NY

INFLUENCES OF ECOLOGY ON METABOLIC SCALING

This is part of an on-going research project examining the $3/4$ power law of metabolic scaling. This law states that metabolic rate is related to mass of an organism by a power of $3/4$. It is argued, however, that this relationship may vary with ecological factors, such as the presence of predators or vegetative cover in the environment. This study examines different populations of amphipods (*Gammarus minus*) from seven springs in the Huntingdon area that vary in the presence of predators and vegetative cover. The metabolic rate of members of each population is measured using oxygen consumption over a 6 hour period. Following measurement, the amphipods are dried and weighed. The relationships between mass and metabolic rate for each population are examined, on a log-log scale. If the $3/4$ power law is correct, the slope for every population should be $3/4$, or 0.75. We believe that the slope will vary depending on the presence of predators and vegetative cover in the natural population.

Nate Drenner (Kathleen Jones) Manheim, PA
MOODLE: ONLINE COURSE MANAGEMENT

Moodle is a highly customizable online course management system (CMS) built for educators by educators. This session will be an overview of the technology, its benefits, and its usage, from the perspectives of a student and a course developer/instructor. Moodle has been evaluated by the College as a potential replacement for Blackboard, and this session in particular comes from independent investigation in ED201 Educational Technology and Campus Technology Services.

Laura Drews (Donna Weimer) Centreville, MD
ELDER SCROLLS IV: OBLIVION: A RHETORICAL ANALYSIS OF THE VIDEO GAME TRAILER

The rising popularity of video games, especially for the PC has brought forth intense competition between new releases. Advertising is becoming more important than ever as companies compete for the attention of today's gamer. This research analyzes the official trailer for The Elder Scrolls IV: Oblivion using a Neo-Aristotelian approach. The study argues that Bethesda Softworks effectively meets the constraints of a split targeted audience, those who have played The Elder Scrolls games, and those who have not. Bethesda establishes ethos, pathos and logos effectively producing a lasting impression on its audience.

Jaime Dull (Jack Barlow) Trafford, PA
THE CHANGING FACE OF AMERICAN CONSERVATION

Conservative ideologies in America are continuously shifting. This presentation will explain why these transitions have occurred throughout American history. The examination of social norms, governmental legislation, and various Supreme Court members and rulings help explain the progression. By tracking the evolution of conservatism from Harlan to Alito this presentation will provide a detailed explanation of why these changes took place. After analyzing the shifts in conservative ideology it is possible to gain a better understanding of future ideological trends.

Kari Dundore (Ruth Reed and John Matter) Ephrata, PA
ENDOCRINE DISRUPTORS: ARE THEY AFFECTING THE EASTERN FENCE LIZARD?

As part of an ongoing study of Pennsylvania fence lizards we are developing an enzyme-linked immunosorbent assay (ELISA) to quantify the amount of the biomarker vitellogenin (vtg) in lizards exposed to endocrine disrupting chemicals. We are adapting an ELISA method developed for trout vitellogenin to develop the ELISA for the fence lizards. Lizard serum was applied to a DEAE column and eluted using a 6 step gradient. We saw that the vtg protein eluted with the 300 mM concentration, using a native gel. Once we have purified vitellogenin from lizard serum, the next step is prepare an antibody to the lizard serum. This antibody will then be used to develop an ELISA that will allow us to quantify the amount of vitellogenin that is produced in the Pennsylvania fence lizard to aid in toxicological studies of these animals.

Neil Eicher (Jack Barlow) Parlin, NJ
POLITICAL YOUTH ORGANIZATIONS IN RUSSIA

An analysis of the political youth movement in Russia with an emphasis on the ineffectiveness of youth organizations in Russian political culture.

Anna M. Elias (Michael S. Henderson) Johnstown, PA

FRENCH CULTURE IN THE WORK PLACE

This presentation documents my experience working at Le Grand Bleu Theater during a semester-long internship in Lille, France. I will compare the French and American workplace in terms of power relationships, time management, interpersonal relationships, and social constructs.

Danielle Enriquez (Randy Bennett) Fairfield, PA

Beth Schuelkens, Lititz, PA

ROLE OF DPP IN BEETLE EYE DEVELOPMENT

The Drosophila eye has been pivotal in helping developmental and cell biologists reconstruct the cellular and intercellular dynamics involved in organizing a complex organ. The relative conservation of the insect adult eye, but not the precise developmental pathway that leads to its structure, presents an excellent opportunity for gaining a richer understanding of the developmental diversity in the generation of complex organs and the response of developmental networks to indirect selective pressures. We will present the status of our project to extend studies of insect eye development in the beetle, *Tribolium castaneum* in our efforts to study the evolution of developmental networks.

Christopher Fanelli (Jack Barlow) McDonough, NY

COMPETING REALITIES OF CIVIL SOCIETY

The project focuses on the development of civil society in the United States, taking into consideration the works of various theorists, including Alexis de Tocqueville. Discussion then moves to an analysis of civil society as it exists within the United States and the implications its existence has for political discourse and inclusion.

Audrey Fry (Peter Baran) Edinboro, PA

THE FIRST TETRADENTATE ASYMMETRICAL PYRIDINE N-OXIDE LIGAND

Synthesis of an asymmetrical tetradentate ligand was attempted, with the intent of creating a new catalyst for organic synthesis. The synthesis was carried out in two steps. The first condensation reaction between 2-pyridinecarboxaldehyde N-oxide and 1, 2-phenylenediamine provided a tridentate ligand. The subsequent condensation step, involving an excess of salicylaldehyde, yielded the desirable tetradentate ligand. Both new ligands were characterized by spectroscopic methods and by X-ray structural analysis. Progress was made towards synthesis of first row transition metal complexes of ligand.

Shane Fuhrman (Mark McKellop) Lebanon, PA

Anthony Holly, Drums, PA

GENDER DIFFERENCES IN THE WRITTEN DISCLOSURE PROCEDURE

Pennebaker and Beall's written disclosure procedure has shown positive effects on many physical, emotional, psychological, and social outcome measures. The current study seeks to explain the effects of gender as a moderating variable in the written disclosure procedure. Participants were randomly assigned to write either about a highly emotional experience they had not previously discussed with others or about a non-emotional topic. It was believed that femininity level, not sex, would have moderating effects on the various outcome measures. However, no significant differences were found on any of the outcome measures based on sex or on femininity level.

Kathryn Funk (Donna Weimer) Milpitas, CA

GENERATIONAL DIFFERENCES OF OPINION REGARDING THE GALAPAGOS FISHERMAN/ CONSERVATIONIST CONFLICT

Snowball surveys were conducted of both fishermen and their sons regarding commonly held conservation views in the Galapagos Islands, Ecuador. Analysis of this research showed that young adults' opinions of conservation efforts were mostly positive, while the older generation's views were mainly negative. This difference is significantly related to stigma/stigma reversal and education level, specifically the number of environmentally based courses. Although both groups agreed that the fisher families were dependant short-term on banning fishing limits, the sons acknowledged the probable collapse of the fishing industry.

Kara George (Paul Schettler) Bradford, PA

TITLE: DEVELOPMENT OF UNDERGRADUATE FORENSIC SCIENCE LABORATORY

Experiments: Application of Gas Chromatography/Mass Spectrometry in Arson Investigation and Drug Identification. The goal of this research project was to implement Gas Chromatography/Mass Spectrometry (GC/MS) in the forensic laboratory science course at Juniata College. This course is intended for chemistry majors with a forensic science career interest, as well as criminal justice majors, and therefore assumes no prior knowledge of GC/MS. The first laboratory was designed to teach the use of GCMS in the characterization of accelerants typically encountered in arson investigation. Students collected fire debris samples and analyzed them for the presence of a variety of accelerants. The second laboratory introduced the use of GC/MS in the identification of drugs. Case studies with appropriate samples were designed and distributed to students. These laboratory exercises introduce students to basic extraction techniques, the practical use and application of GC/MS, and the interpretation of spectra in the identification of accelerants and drugs.

Danielle Greenleaf (David Hutto) Martinsburg, PA

Chrissy Weaver, Stowe, PA

Cecelia Shertz, Ebensburg, PA

DISEASE MONOGRAPHS

These disease monographs are written for a medical audience who know medicine in general and are comfortable with medical terminology, but who may not know this particular medical condition. This monograph should cover (1) what causes the disease or condition, (2) what its symptoms are, (3) how it is diagnosed, (4) who it affects, (5) how it is treated. The monograph should contain sections with subheads, beginning with Introduction and appropriate subhead names depending on the information. At the end is a Reference section in AMA format, with sources cited in the monograph.

Katey Glunt (Vincent Buonaccorsi) Bellefonte, PA

Heather Hassell, Glenolden, PA

EFFECTS OF OCEANOGRAPHY, HABITAT DISCONTINUITY, AND GEOGRAPHIC DISTANCE ON FINE-SCALE POPULATION STRUCTURE OF COPPER ROCKFISH, *SABASTES CAURINUS*, ALONG THE OREGON COAST

In non-migratory groundfishes like the copper rockfish, *Sebastes caurinus*, physical and therefore genetic movement among populations is primarily attributed to the dispersal of pelagic larvae and juveniles. Along the Oregon coast, successful recruitment of larvae and thus gene flow may be interrupted by the offshore jet at Cape Blanco or by poor habitat north of the cape. PCR-based microsatellite genotyping analyses provided information about population structure and gene flow. DNA was isolated and genotypes assembled across 6 loci for 726 fish from Oregon and Washington, USA. Traditional population genetic analyses combined with individual-based analyses helped to discern the importance of oceanography, habitat availability, and isolation by distance on population structure.

Zineb Gormat (Celia Cook-Huffman) Huntingdon, PA

WHAT MAKES AN EFFECTIVE LEADER: POWER OR TRUST?

Leadership has been of a tremendous interest to many scholars in various fields, including philosophy, business, politics, and communication. What makes a good leader has been the core issue among all these scholars. There is no single concrete answer for it. Effective leadership is an amalgam of a variety of different qualities. According to Dietz (1986), Machiavelli's the Prince argues that the hallmark for a "good" prince is not his morality but his skills and capacities in governing his state and having authority and power over his people and territories. In addition, a prince may use torture and be dishonest if the overall goal is the good of the state (Dietz, 1986). However, this paper argues that what makes a good leader is not power but the trust of other people. It also discusses leadership and power in relation to trust. Ultimately, it examines the vital role that communication plays in building effective leadership.

Daniel Grace (Pat Weaver) Hopewell, PA

THE DOGS OF THE DOW

True market anomalies, derived from structural factors within the market or from behavioral biases by economic agents, are seldom found within our seemingly efficient market. Yet, there is a large consumer market based on the sale of investment strategies designed to take advantage of so-called "market anomalies." By researching one seemingly successful market anomaly, the "Dogs of the Dow," we are able to better understand proper investment techniques, how to be profitable in the stock market, and why true market anomalies are both hard to find and rarely sustainable for a significant period of time.

Robert Grimminger (Paul Schettler) Huntingdon, PA

CRITICAL ANALYSIS OF VARIABLES USED IN MODELING OF TWO DIMENSIONAL GAS CHROMATOGRAPHY

Computer simulation of GCxGC chromatograms has probably more potential as an aid in application development than existing simulators for one dimensional chromatography. We have constructed such a simulator and this paper focuses on how best to determine some of the needed parameters. In particular we have focused on obtaining accurate dead times of the coupled columns and the inlet pressure of the second column.

Stephanie Guida (Ruth Reed) Newark, DE

ISOLATION OF GLUTAMATE: GLYOXYLATE AMINOTRANSFERASE FROM CHLAMYDOMONAS REINHARDTII

Glutamate:glyoxylate aminotransferase (ggat) is an enzyme of photorespiration that we propose may have interesting properties linking photorespiration to other metabolic processes in the peroxisome. We are purifying and characterizing ggat from the green alga *Chlamydomonas reinhardtii* as the first step in the study of the role of this enzyme. The purification procedure is adapted from Lain-Guelbenzu et al. *Eur J Biochem* 202: 881-7, 1991. The improved procedure will be reported. We will also report a comparison of properties of ggat with reported values.

Heather M. Hassel (Paula Wagoner) Glenolden, PA

DO ENVIRONMENTAL STRESSORS LEAD TO NON-MONOGAMOUS MATING BEHAVIORS IN THE LESSER APE, *Hylobates syndactylus*?

Gibbons had long been considered the archetype of monogamous primates. However, recent behavioral studies indicate that gibbons exhibit a wide variety of mating behaviors, including polyandry, extra-pair copulations, and frequent mate changes. I propose to conduct a survey of parentage and social group structure, using molecular genetic techniques, in order to determine the degree to which non-monogamous behaviors contribute to the genetic structure of the population. Through this work, the Foraging Theory of Pair-bond Formation will be tested. This theory predicts that group size and composition is adjusted according to the distribution and abundance of resources in time and space.

Heather M. Hassel (Vincent Buonaccorsi) Glenolden, PA

GENETIC EVALUATION OF COMMON CAPTURE AS AN INDICATOR OF FAMILIAL RELATIONSHIP IN WHITE-TAILED DEER

Past studies of white-tailed deer (*Odocoileus virginianus*) behavioral ecology have based their experimental methods on the assumption that juveniles captured with an adult female were her progeny. We examined the accuracy of this method using molecular genetic techniques. Deer were genotyped at 10 polymorphic microsatellite loci, and parentage assignments based on genotype comparisons. Maternity could be confirmed for 20 (44.4%) juveniles from Armstrong County and 17 (48.6%) juveniles from Centre County. The remaining juveniles had no confirmed mother in their capture group, bringing into question the validity of results from past studies that have inferred maternity based on common capture.

James C. Hayden (James Tuten) Huntingdon, PA

A SOCIO-CULTURAL HISTORY OF THE JUNIATA RIVER VALLEY FROM 1700 TO 1790

Local histories usually provide great narratives of a specific area or time period. The Juniata River Valley is a locality rich in these types of histories. Presently, a minor amount of scholarship exists on the area's historical experiences. Rhys Isaac wrote *The Transformation of Virginia, 1740-1790*, published in 1982, and it established the shaping and history of the state of Virginia from an ethno-historical outlook. Combining Isaac's methodology and the local histories that exist on the Juniata River Valley, provides a more thorough historical look into why the region eventually participated in the Seven Years and Revolutionary Wars. This thesis hopes to look at the region from the viewpoint of analyzing social interactions in conjunction with the local narratives in order to provide a better understanding the history of the valley.

Laura Hebert (James Tuten) Amherst, NH

PATCHWORK, PRIDE, AND POWER: A HISTORY OF QUILTING AMONG AFRICAN AMERICAN WOMEN IN THE AMERICAN SOUTH

This paper aims to describe and examine the role that quilting and quilts have played in the history of African-American women in the southern United States. Though recent trends have tended toward the appreciation of these unique and beautiful quilts for their artistic significance, their importance reaches far beyond the aesthetic. Here, the economic and cultural importance of quilts will be examined in the context of slavery, post-slavery and early twentieth century, the Civil Rights Movement, and the present day.

Ashley Hileman (Donna Weimer) Roaring Spring, PA

WALKING THE LINE: ANALYZING THE CONTINUED SUCCESS OF JOHNNY CASH USING THE TRADITIONAL APPROACH

My research illustrates how Johnny Cash utilized the Canons of Rhetoric, specifically those of invention, organization, and style to create a highly effective message in the form of a song, "I Walk the Line". The successful combination of the strategies involved in these Canons allowed him to meet many of the constraints placed on him in the forms of rhetoric and audience, and in doing so has also allowed the song to continue to enjoy success fifty years after its original release.

Lori Hodel (Ryan Mathur) New Tripoli, PA

THE MAPPING AND ANALYSIS OF AU-AG BEARING QUARTZ VEINS IN GANARIN, ECUADOR

Southern Ecuador's Azuay province contains a prospective Au-Ag mine site called Ganarin. During the summer of 2005, a comprehensive geologic map was created of the 9km² area. The location and orientation of quartz and calcite veins were recorded, and samples of quartz veins and their surrounding host rock were collected for further inspection. Pyrite was found within the samples, as well as Au and Ag, typically occurring as isolated blebs within the quartz matrix. Gold and silver concentrations within quartz veins, as well as the occurrence of sericite, adularia and quartz replaced calcite in the field, confirm previous hypotheses that this area represents a low sulphidation epithermal gold and silver deposit.

Joseph D. Houck (Richard Hark) Spruce Creek, PA

SYNTHESIS AND EVALUATION OF TRICLOSAN ANALOGS

Triclosan, 5-chloro-2-(2,4-dichlorophenoxy) phenol, is a common antibacterial chemical used in many commercial products. Triclosan inhibits bacterial growth by forming a ternary complex with the nicotinamide ring of the coenzyme NAD⁺ and enoyl reductase (ENR). This enzyme is responsible for catalyzing the last step in fatty acid biosynthesis which is essential for the production of cell membranes. Bacteria have developed resistance to triclosan through adventitious mutations in the ENR enzyme or through active efflux of triclosan from the cell. Triclosan has also been shown to bioaccumulate in the environment. In an attempt to address these concerns, a series of 40 triclosan analogs were synthesized in which the chlorine atoms were either removed altogether or replaced with fluoro, bromo, hydroxy, methoxy, nitro, or amino groups. The analogs were spot tested against a variety of wild-type bacteria and all compounds that showed activity results were further evaluated to find the minimal inhibitory concentration.

Janet Marie Howe (David Sowell) Browns Mills, NJ

WHERE PROTEST FOUND A CAUSE: EXTERNAL AND INTERNAL INFLUENCES IN THE MEXICAN STUDENT MOVEMENTS OF 1968

On October 2nd, 1968, on a government order, Mexican Police opened fire on a group of student protesters, in Tlatelolco Square, Mexico City, killing and wounding hundreds. This massacre occurred at the climax of an escalating student movement protesting against the oppressive government in Mexico in the days before Mexico hosted the Summer Olympics. The student movement emerged in the context of both internal and external conditions. An analysis of students' documents shows the impact of these external forces in the foundations of the movement, but an eventual evolution that led it to be characterized as a Mexican movement. This paper examines each of these factors that led up to the Tlatelolco Massacre, but focuses upon this evolution from the external shapers to the national consciousness.

Janet Marie Howe (Paula Wagoner) Browns Mills, NJ

WAL-MART TRAFFIC EXIT HERE: THE WAL-MART IMAGE IN HUNTINGDON, PA

Since 1962 Wal-Mart has risen to be the second largest employer in America with current revenues of over 220 billion dollars a year. Countering that, Wal-Mart's size and power, as well as its less than desirable effects and business practices, have resulted in a powerful backlash. In January, 2006 a Wal-Mart opened in Huntingdon County, PA. This paper represents a culmination of three semesters of observation, research and analysis looking at local views about that Wal-Mart. Using local and national newspaper resources, formal interviews, phone and email polls and questionnaires, as well as general observation this paper represents the spectrum of views that the population of Huntingdon associate with the Wal-Mart and the conflict between from the national perception of Wal-Mart.

Celina Isenberg (Jack Troy) Huntingdon, PA

RADIOLARIAN COLANDERS

A series of wheel-thrown bowls, transformed into colanders with the pattern of holes in likeness to various radiolarian forms, as found in Ernst Haeckel's "Art Forms in Nature."

Meara Kauffman (Richard Hark) Reedsville, PA

SYNTHESIS OF NOVEL HELICAL DIBENZOTHIOPHENE DERIVATIVES

Three novel isomeric diones were prepared from dibenzothiophene utilizing a convergent multi-step synthetic route. The key step involved the PPA cyclization of a dicarboxylic acid to form a mixture of linear, bent, and helical dione isomers. The yield and isomeric distribution of the diones was found to be dependent upon temperature. The initially formed helical isomer is hypothesized to undergo isomerization under the reaction conditions to the more thermodynamically stable bent and linear isomers. The helical isomer is of particular interest because this dione can be condensed with a variety of nitrogen nucleophiles to provide an entry into a new series of chiral ligands. The diones are also of interest as precursors to potential latent fingerprint visualization reagents.

Matthew Katz (John Bukowski) Yardley, PA

A BRIEF HISTORY OF CONIC SECTIONS

During the time of Greek Mathematics, the formation of Conic Sections was a topic of interest. Many famous mathematicians worked on volumes detailing the three main conic sections: the parabola, the hyperbola, and the ellipse. The most important name in this subject is Apollonius, who wrote a nine volume set "On Conics". The talk will cover how Apollonius, and others, discovered and defined Conic Sections and some of their modern day applications.

Julie Kennedy (David Sowell) Woodbury, PA

SEX, LOVE, AND ANARCHY: LUCY PARSONS AND EMMA GOLDMAN AND THEIR STANCE ON THE "WOMAN QUESTION"

My research aims to discuss the lives and ideologies of two anarchists, Lucy Parsons and Emma Goldman, and how they affected their views on sex, love, marriage, and other female issues. The research will discuss how their lives and specific circumstances led to their stances on these subjects. The research will also compare the two women's stances and why they did or did not differ.

Steven E. Knepper (James Tuten) Blair's Mills, PA

"SHOOT QUICK, AND SLOW" SOUTHERN SPORTING VALUES IN WILLIAM FAULKNER'S *GO DOWN MOSES*

Many critics of Faulkner's *Go Down, Moses* repeat Ike McCaslin's mistake, they separate his hunting experiences from the greater southern culture. They turn the wilderness and the hunt into a seemingly legitimate escape from societal problems of racism and exploitation. This paper argues, however, that the hunt is a cultural institution and is thus intricately connected to the very issues that Ike seeks to escape. An analysis of his hunting experiences in terms of the core sporting values of prowess, self-control, and mastery illustrates these connections, providing thematic unity for the work and making Faulkner's cultural critique more apparent.

Katrina Kratz (David Reingold) Quakertown, PA

NOVEL TRICYCLIC KETONES BY TANDEM REACTIONS

Methyl-(3-oxocyclohexylidene)acetate(3) was synthesized by the Wittig reaction of methoxycarbonylmethylenetriphenyl phosphorane (1) and 1,3 cyclohexadione(2). Compound 3 was treated with 2-cyclohexenone (4) to perform a Michael-Claisen reaction and make 5.

Keri LaBella (Debra Kirchhof-Glazier) Norfolk, NY

Tamara Wolfgang, Pine Grove, PA

FOOD STAMP ACTION

As a follow-up to the fall Nutrition symposium on food and poverty in Huntingdon, we did independent study projects to develop teaching modules for food stamp recipients and to compile a cookbook to accompany these modules. The modules focus on providing nutritional guidelines for families on limited budgets to help them get the most financially and nutritionally out of their food stamp money. The cookbook includes recipes that are not only economical and nutritious, but which also address nutritional requirements of pregnant women and people suffering from diabetes, high cholesterol, and other health conditions impacted by nutrition. We plan to offer some of these modules in the community by the end of the semester.

Lindsey Lang (Gerald Kruse) Harrisburg, PA

THE GENDER FACTOR IN INFORMATION TECHNOLOGY

When thinking of a typical occupation, certain images pop into your head. What's the first thing you think of when someone mentions the field of computers? The majority of people would think of a 'geeky' male sitting behind a computer screen for hours upon end typing away. Why is this? This thesis argues that society creates implicit and explicit messages about the Information Technology (IT) field that result in the perception that the IT field is inaccessible to women, but open to and attainable by males.

Wesley Langenbacher (James Tuten) Tyrone, PA

TERROR ON THE COAL FIELDS: WHAT HAPPENED TO THE MOLLY MAGUIRES?

Between 1860 and 1878 the Pennsylvania Anthracite mines, dominated by poor, unskilled, immigrant laborers, bore witness to repeated attempts to make the lives of the miners more tolerable. The most notable effort to band together against the mining businesses came from the feared Molly Maguires. After a reign of terror that stretched nearly two decades, and included crimes ranging from arson to murder, the group was brought to justice by the Pinkerton's and the Philadelphia and Reading Railroad President, Franklin B. Gowen. Gowen, whose business was most affected by the actions of the Mollies, claimed that the hanging of at least twenty mollies provided the terrorized area justice. After extensive research, I will present the case that Gowen singled out this group to not only curb the violence, but also to defeat the thing he feared more than the Mollies themselves, the laborers right to organize in to unions.

Jonilyn G. Longenecker (Jeffrey P. Wolbach) Brownstown, PA

STRUCTURE-BASED DESIGN OF PEPTIDIC INHIBITORS OF IDES

The tripeptidic cysteine protease inhibitor Z-LVG-CHN2 has been shown to display antibacterial activity against *Streptococcus pyogenes*, however no enzymatic target has been identified. Recently, a novel cysteine protease has been discovered, the Immunoglobulin-G degrading enzyme of *S. pyogenes* (IdeS). This work describes docking studies conducted against this enzyme using peptidic ligands, beginning with mimics of the hinge region of the natural substrate, Immunoglobulin-G. In addition to the putative active site, potential sites for allosteric binding have been studied to investigate possible mechanisms of enzyme activity. The docking studies have been performed in parallel with enzymatic assays for multiple peptide libraries. Initial results indicated inhibition by a particular peptide motif. Our further studies will attempt to elucidate a mode of binding for this motif, and aid in directing synthesis of more potent inhibitors.

Marsha Loth (David Reingold) Hollidaysburg, PA

PROGRESS TOWARD THE SYNTHESIS OF THE FIRST DELOCALIZED SEMIBULLVALENE

Semibullvalenes are known to undergo the Cope rearrangement with a transition state that is bishomoaromatic. The molecule 1,5-methylenesemibullvalene should also undergo the Cope rearrangement but the bishomoaromatic form should be the energy minimum. If it can be synthesized, it will be the first semibullvalene to remain stable in its symmetric form. Its synthesis can be achieved using [3.3.1]propellane-3,6-diene-2,8-diol which is a product of

reducing [3.3.1]propellane-3,6-diene-2,8-dione. Selenium dioxide oxidation was previously used to synthesize the dione, but degradation of the product resulted from prolonged high temperatures. A new method using phenyl selenium chloride followed by an oxidation and syn elimination will be investigated as a pathway to the desired α , β -unsaturated ketone. The dione and diol will be synthesized with consistent yields and characterized using spectroscopy.

Andrew McWilliams (Larry Mutti) Westport, CT

NEW HOMOGENIZATION DATA FOR FLUID INCLUSIONS IN FAULT RELATED QUARTZ VEINS IN THE BALD EAGLE FM. IN CENTRAL PA

Fluid inclusion analysis was used to evaluate fluid migration in prominent faults that cut the Bald Eagle Fm at the Skytop roadcut near State College, PA. The current understanding of this locality involves mineralization whereby fluid migration occurred through Mississippi Valley Type (MVT) processes. The new data is in conflict with this model. The temperatures ranged from 140°C to > 375°C. Homogenization temperatures in the 150-225 degree range are typical of MVT type processes. However, homogenization temperatures above the 300 degrees suggest processes unrelated to MVT processes. While the data do not present any conclusions as yet; the fluid inclusion data have profound implications for the current understanding of the geologic history of central Pennsylvania.

Jill Malcolm (Donna Weimer) Newtown, PA

THE LIFE OF WINE: AN ARISTOTELIAN ANALYSIS OF THE FILM *SIDEWAYS* (2004)

Using the Traditional Approach to criticism, I measured the effectiveness of a conversation in the film *Sideways* (2004). The scene involves two characters, Miles and Maya who converse over the subject of wine. However, Miles uses this opportunity for discourse to attract the attention of Maya by revealing intimate traits of wine that relate to his own personality. Thus, wine in this rhetorical situation symbolically embodies the personality of Miles himself. Through my research, I was able to conclude that Miles was effective in garnering Maya's compassion and interest in him through his dialogue.

Jessica Mann (Richard Hark) Northampton, PA

THINK, EVOLVE, AND ACT WITH THE JUNIATA COLLEGE SAACS

The Juniata College American Chemical Society Student Affiliates actively promote chemistry on campus and in the community. Our group has received a number of honorable mention citations from the ACS over the past several years. Known as Chem Club on campus, the group maintains an informational website, sponsors field trips to local companies and universities, regularly organizes excursions to national chemistry conferences, coordinates the departmental seminar series, and actively participates in college recruitment events. Chem Camp, which annually gives 50-80 local school children the opportunity to learn about chemistry through a variety of hands-on experiments, has been our main outreach activity for the past six years. It is particularly popular in the local community and has been partially funded by a Community Service grant from ACS for the last several years.

Tiana Mazzaresse (Jack Barlow) Duncansville, PA

AFFIRMATIVE ACTION: IS IT HISTORY?

My presentation is going to focus on history of how we got to where we are when it comes to affirmative action. I will look at the passed to see what has brought us to the development of affirmative action, what affirmative action entails, and then issues in society today that show both how affirmative action is still very much present, but also show how it is being neglected and allowing for segregation to re-emerge.

Gerald Miceli (Marlene Burkhardt) Mechanicsburg, PA

Tom Kimmel, Canfield, OH

Jesse Leonard, Johnstown, PA

Will Russell, Tyrone, PA

DIFFUSION OF CELL PHONE ATTITUDES AND BEHAVIORS

In today's society, mobile communication has become increasingly integrated into virtually every aspect of life. As mobile usage increases, so does mobile technology. We have constructed a survey to assess cell phone usage patterns and individual attitudes concerning the use of cellular devices. The network data was analyzed with the survey data to shed some light on how cell phone attitudes and usage patterns diffuse. Our study has shown a direct correlation

between personal beliefs and lifestyle attributes, and frequency of mobile technology usage. Our data will also be compared to a mirror network data analysis of students from various countries.

Gerald Miceli (Pat Weaver) Mechanicsburg, PA

SARBANES-OXLEY: A PRICE TAG FOR HONESTY?

In 2002, congress passed the most influential piece of legislation affecting the financial world since the Securities Exchange Act of 1934. My research aims to determine if the costs of implementing this legislation are worth the benefits. The Sarbanes-Oxley Act has proven to have several negative consequences affecting not only publicly traded companies, but also the economy as a whole. On the heels of several accounting scandals, such as Enron and WorldCom, it is important to determine if congress overreacted when implementing this legislation. Furthermore, my analysis answers the question as to whether the contents of this legislation really fix the problem, or does it provide additional loopholes for the executives of Fortune 500 companies.

Andrea Naranjo (Lynn Cockett) Huntingdon, PA

DO GROUPS MAKE BETTER DECISIONS THAN INDIVIDUALS?

One of the questions that have been discussed for many people about decision making is whether groups make better decisions than individuals. In most of the cases, the answer to this question has arrived to the same point: 'it depends'. Individual and group decision making have their own and different strengths. This work will analyze the most important strengths of these two types of decision making since they should be considered when deciding which strategy should be applied and what outcome is being sought.

Justin Neidig (Jill Keeney) Loyalsock, PA

DETECTION OF RAD53 IN *SACCHAROMYCES CEREVISIAE*

Transposition of the Ty1 retroelement in *Saccharomyces cerevisiae* is temperature sensitive. Genetic screens were done to identify host genes regulating transposition. Two genes identified are involved in the yeast DNA repair pathway. We are currently characterizing Ty1 cDNA and protein levels in these strains at a range of temperatures. The main focus of our current studies is investigating the role of these genes and the recombination pathway during Ty1 transposition by assaying for phosphorylation of the Rad53 gene product, which is involved in signal transduction during DNA repair.

James Nelson (Loren Rhodes) Lanse, PA

BIOMETRICS

My research deals with several biometric methods of identification. Biometrics uses physical or behavioral characteristics to uniquely identify a person. The methods I discuss in my research include fingerprint scanning, retina scanning, iris scanning, hand geometry, facial geometry, voice recognition, gait recognition and others. This is an explanation of how they work, advantages and disadvantages, and some real-world applications of the technologies. I also have a biometric USB Flash Memory drive that I am using for testing purposes. It utilizes a fingerprint scanner, and I will be able to let symposium attendees try out this technology. This will be meant as an informative look at biometric technology and what it can do.

Matthew Newman (Donna Weimer) Pennsburg, PA

The Broadcast Flag

The Broadcast Flag, a series of bits inserted into digital television segments being proposed to Congress by MPAA, should be approved, as it is a copyright security measure that is vital to protecting the broadcasting media company's intellectual property. Opponents however, argue against the approval of the broadcast flag because the specified restrictions would violate the customer's 'fair use' rights. By analyzing the college student population, ages 18 to 22, we should find that as consumers they will be willing to pay a slight fee for access to archived digital content. This would appease Congress, the MPAA, and the consumers.

Han D. Nguyen (Peter Baran) Thomasville, GA

COMPLEXATION OF PHENANTHROLINE MONOXIDE AND PHENANTHROLINE DIOXIDE

Phenanthroline monoxide (phenO) complexes of cobalt(II), nickel(II), copper(II) and zinc(II) halides and carboxylates have been studied. Complexes of ZnBr₂, Co(CHCl₂CO₂), Cu(CHCl₂CO₂), Ni(CHCl₂CO₂), and Cu(CH₃COO)₂ with phenO were synthesized and characterized by spectral measurements (IR, UV/VIS, NMR and by x-ray structural

determination. The analogous complexes with 1,10-N,N'-phenanthroline dioxide (phenO2) were also studied to compare their coordination modes to those of phenO. While some phenO2 complexes have been previously characterized, a doubt about existence of phenO2 prior to the year 2000 prompted this study. To the best of our knowledge, there is no crystallographic characterization of a single complex with phenO2 in literature. We will therefore present the x-ray crystal structure of [Cu(phenO2(H2O))](CHCl2CO2)2*2H2O and the in-progress crystal structure of an analogous complex with phenO2.

Katie O'Brien (Lorraine Mulfinger) Hanover, PA

MELITTIN TETRAMER SIMULATION WITH LINUX CLUSTER USING NAMD AND VMD

The molecular modeling program, NAMD, and its graphical interface, VMD, will be used to study the interactions and structural changes of the four monomers in a melittin tetramer. Using the Linux cluster, a minimization and a simulation will be run on a tetramer of regular melittin, a tetramer of melittin with the distances between monomers swelled to 1.5 times, a tetramer of melittin with intermonomer distances swelled to three times, and a tetramer of formyl melittin with distances swelled to three times. The structural changes for each simulation will be analyzed by calculating RMSD values for the first nanosecond.

Emily O'Donnell (James Tuten) Royersford, PA

A TIME OF DESPERATION: THE CONFEDERACY'S QUEST FOR PAPAL RECOGNITION

Using primary source letters and documents from 1860-1865, I argue that the severity of the problems of the Catholic Church in the South during the Civil War provided Jefferson Davis and the Confederacy with its most promising and solid argument for international recognition in the later years of the conflict. The inability to properly run church business, communication difficulties, the Union blockade, the destruction of church property and lost lives of parishioners made for a strong case which the Confederacy brought before Pope Pius IX in 1864. I conclude that the Confederacy failed to gain papal recognition because the attempt came too late in war as a Union victory was imminent and because the papacy could not overlook the moral issue of slavery.

Allison Phillips (David Lehmann) Carlisle, PA

PATTERNS IN NITRATE LOADS IN AN AGRICULTURALLY-IMPACTED STREAM AND IMPLICATIONS FOR BEST MANAGEMENT

Nutrient loading of streams must decrease. Best management practices (BMPs) for reducing nitrate loads can be ineffective due to a lack of understanding of the source and delivery mechanisms of nitrates in individual watersheds. However by characterizing the watershed first these issues can be avoided. Warrior's Mark Run is an agriculturally-impacted stream in Pennsylvania. By sampling and using GIS analysis we were able to determine that delivery of nitrates is primarily through groundwater. There are discrete stretches in the stream that have high nitrate loading. These may reflect nutrient management practices and/or small scale aquifer characteristics. These areas should have high priority for the implementation of groundwater quality BMPs.

Sarah Pierce (John Matter) Marysville, PA

EFFECTS OF PESTICIDE CHEMICALS ON REPRODUCTIVE DEVELOPMENT IN THE FENCE LIZARD, *SCeloporus undulatus*

Recently there has been growing concern about the effects of common commercial pesticides on organisms and the environment. Many of these compounds, referred to as endocrine-disrupting compounds (EDCs), mimic endogenous hormones. Several studies indicate that low-level exposures to such chemicals result in a variety of reproductive abnormalities in fishes, amphibians, and aquatic reptiles. Using a terrestrial reptile, the fence lizard (*Sceloporus undulatus*), reproductive effects of in-ovo exposure to three chemicals; atrazine, trans-nonachlor, and alachlor; were examined. None of the chemicals significantly effected growth or survivorship; however, preliminary examination showed that all three chemicals resulted in increased occurrence of reproductive abnormalities compared to a control group. Abnormalities included testicular atrophy in males, archinephric duct retention in females, and an intersex gonadal condition in several individuals. These abnormalities were also observed in the positive estrogenic control.

Gregory Pierotti (Ryan Mathur) Smethport, PA

RE-OS MOLYBDENITE AGES FOR THE ANTIETAM RESERVOIR

The Reading Prong is an upland physiographic province located in New York, New Jersey, and Pennsylvania. In order to further understand the geochronology of the area, Re-Os molybdenite ages were obtained from dikes

crosscutting cutting presumed Byram Intrusive Suite near the Antietam Reservoir, Berks County, Pennsylvania. The Re-Os data can be separate into two groups: 1) Samples with low concentrations of Re and Os (0.25-1 ppm and 0.003-1.28 ppm respectively) and samples with higher concentrations of Re and Os (12 ppm and 0.426 ppm respectively). This study further confirms the notion that molybdenite samples can be isotopically altered and this disequilibrium can be identified by the presence of supergene molybdenum minerals such as powellite and ferrimolybdate.

Ryan Porter (Lorraine Mulfinger) Ephrata, PA

COMPARING THE HELICAL PROPERTIES OF MELITTIN AND N-FORMYL MELITTIN

Melittin is a 26-amino acid peptide that composes 50% of the dry weight of venom of the common honey bee, *Apis mellifera*. Kreil and Kreil-Kiss reported in 1967 that approximately 10% of the melittin found in honey bee venom is formylated at the N-terminus. Surface Enhanced Laser Desorption Ionization-Time of Flight Mass Spectroscopy (SELDI-TOF MS) now detects varying proportions of N-formylmelittin:melittin in honey bee venom samples isolated under different conditions. This variability augments the importance of understanding the possible effects that N-formylation may have on the biological activities of melittin. Because the hemolytic activity of melittin has been associated with the predominantly α -helical N-terminal region of melittin, circular dichroism spectropolarimetry will be used to evaluate the effect of N-formylation on alpha helical structure of melittin. Percent helicity will be evaluated by two algorithms; Jasco Software and CD Pro software.

Matt Reish (Peter Baran) Harrisonburg, Virginia

PYRIDINE N-OXIDE ANALOGS TO JACOBSEN'S CATALYST

Metal salen complexes such as Jacobsen's catalyst are very recent innovations allowing for remarkably chiral epoxidation in organic synthesis. Deactivation of the catalyst, however, is still a problem and extensive research on the effects of changing the substituents of the catalysts has not been thoroughly explored, though it is the subject of intense research at many institutions. During my research I have created a ligand analogous to Jacobsen's catalysts with pyridine N-oxide substituted for phenol groups. The new Pyridine N-oxide tetradentate ligand(I) was prepared via condensation of 2-pyridinecarboxaldehyde N-oxide with 1,2 cyclohexanediamine. This ligand was then complexed with copper, manganese, cobalt and nickel and the x-ray crystal structures of the ligand and the complex with copper were both determined. In the future I will do epoxidations using this new ligand with different metals in order to test its enantio-selectivity and ability as a catalyst.

Devin Rice (Philip Dunwoody) Osceola Mills, PA

JUDGMENTS OF POTENTIAL THREAT TO U.S. CITIZENS

This study examined the ratio of false-positives and false-negatives produced by a participant in relation to the support for the policy of preemption. Participants included 132 Juniata College students who were administered anonymous surveys that asked about a hypothetical situation involving a potential threat to U.S. citizens or interests. Also in the survey were scales of individual difference variables including: Right-Wing Authoritarianism (RWA), the International Insecurity (IIS), and the American Social Identity (ASIS). All of the individual difference variables were significantly correlated with support for the policy of preemption. RWA, ASIS, and the ratio of false-negatives and false-positives account for 62% of the variability in support for the policy of preemption. Future research will focus on clarifying the relationship among these variables.

Ryan Richards (Brad Andrew) Coupeville, Washington

IN SEARCH OF DEVELOPMENT IN GUATEMALA

This research explores the economic and political factors behind Guatemala's continuing poverty and then examines possible paths the country might take to achieve greater prosperity.

Stephan Rinke (Randy Bennett) Eddenitz, Germany

Jordi Farres Basiana, Barcelona, Spain

Joe Daft, Mechanicsburg, PA

Jessica Mann, Northampton, PA

Nick Price, Lewistown, PA

Joe Boyd, Harrisburg, PA

CLONING GENES INVOLVED IN EYE DEVELOPMENT IN THE BEETLE

The *Drosophila* eye has been pivotal in helping developmental and cell biologists reconstruct the cellular and intercellular dynamics involved in organizing and differentiating a complex organ. To better understand the evolution

of the developmental pathway for insect eye development, we are cloning several genes known to be important in *Drosophila* development in order to analyze their roles in the development of the beetle eye. Recently the genome of the beetle *Tribolium castaneum* has been sequenced. Using this data, searched the *Tribolium* genome for homologs to genes that are important for *Drosophila* eye development. We design primers and performed PCR to amplify and clone these genes from *Tribolium*.

Natalie Rizzuto (Jack Barlow) York, PA

THE FUTURE OF THE EU: TURKEY AND IDENTITY

The EU is at a crucial stage: the rejection of the EU constitutional treaty in France and the Netherlands showed extreme hostility towards continued enlargement, in particular towards Turkey. The rejection also reflects growing hostilities toward the growing Muslim populations in Western Europe; however, hostilities are present among the Muslim European populations toward the white, Christian citizens that they live among as well. Turkish citizens themselves are skeptical of accession. They are opposed to what they feel is "caving in" to EU demands, and many feel insulted after years of strenuous effort to please their European neighbors. Some argue that what is necessary is a more cosmopolitan European identity in order to better represent its citizens and to further a "vibrant political future" for the Union.

Brad Rossman (Jack Barlow) Cresson, PA

THE PATRIOT ACT: BEGINNING, RENEWAL, AND SECURITY VS. LIBERTY

I am going to discuss the beginning of the Patriot Act from the very starting factor to the now reauthorization of the Patriot Act passed on March 9, 2006. The basis of my talk will be dealing with the discussion of security vs. liberty and I will discuss the factors that line each side of the argument.

Haley Rothrock (Phil Dunwoody) Lewistown, PA

MISPERCEPTIONS REGARDING THE IRAQ WAR, RIGHT WING AUTHORITARIANISM, AND SOCIAL DOMINANCE

This study examined the relationship between the number of misperceptions held regarding the Iraq War and one's level of right wing authoritarianism and social dominance. One hundred and thirty eight students were given a survey consisting of seven-point likert scale questions, multiple choice, and open ended questions. Six questions on the survey focused on possible misperceptions an individual could possess regarding the Iraq War. We hypothesized and found significant correlations between the total number of misperceptions and an individual's score on right wing authoritarianism and social dominance. A regression analysis confirmed that authoritarianism and social dominance contribute unique variance to the number of misperceptions held. Independent sample t-tests were also used to clarify which misperceptions were related to authoritarianism and social dominance. This study helps explain some of the potential psychological mechanisms that underlie the relationship between misperceptions and support for the war in Iraq.

Rose Santangelo (Richard Hark) Jacksonville, FL

SYNTHESIS OF ASINDACENE-1,2,7,8-(3H,6H) TETRAONE, A POSSIBLE LATENT FINGERPRINT VISUALIZATION REAGENT

Fingerprints are still one of the most useful and convincing types of physical evidence that can be introduced in criminal court cases. The search for enhanced methods for developing fingerprints of evidentiary value is an important and ongoing area of research. The reaction of 1, 2-indandiones with amino acids to give colored and fluorescent products is the basis for a sensitive method for visualizing fingerprints on porous surfaces such as paper. The synthesis of as-indacene-1,2,7,8-(3H, 6H)tetraone from the corresponding 1,8-dione using a tandem two-step procedure is described. This compound is of interest because it represents the first bifunctional 1,2-indandione analog.

Magda Sarnowska (Brad Andrew) Plock, Poland

POLAND - A CASE STUDY OF ECONOMIC TRANSITION

The paper is a case study of Poland on its way "away from Moscow" and "towards Brussels." The paper discusses years of economic disaster prior to 1989 and the economic reforms of the transition period. The paper addresses such problems in centrally planned economies, asymmetric information problems, interplay between politics and economics during the transition and assessment of the reforms.

Magda Sarnowska (Brad Andrew) Plock, Poland

BANKING SECTOR IN TRANSITION ECONOMIES: CASE STUDY OF POLAND

Banking sector transformation during Poland's transition to market economy illustrated how inexperienced government succeeded in overcoming asymmetric information problems, principal-agent problems, and corruption while trying to establish an efficient system of financial intermediation. The paper takes a closer look at the financial aspect of Poland's economic transformation.

Magda Sarnowska (Brad Andrew) Plock, Poland

POLAND AND ITS WAY TOWARDS OR OUT OF PROSPERITY AFTER THE EU ACCESSION

Corruption, overregulation, and red tape significantly hindered Polish economic growth resulting from the EU accession. GDP growth was offset by increase in inflation rates, persisting unemployment, lower than expected foreign investment. Corruption, overregulation and red tape added to economic problems and were often intensified by after the EU entry. Although the overall accession assessment is positive, it is in relative terms, a failure. The poster illustrates the above thesis.

Joshua Scacco (Dennis Plane) Lebanon, PA

AMERICA'S VOTER REGISTRATION PROBLEM

Voter registration in America is a difficult but necessary process. Despite its importance to American democracy, little analysis exists on attitudes toward the voter registration process. This research seeks to shed light on student attitudes about voter registration and how those attitudes change in response to experimental stimuli. Experimental and control groups were given an initial survey measuring voter registration attitudes. The experimental group was then asked to complete actual registration forms under various scenarios. After being informed of the results, a follow-up survey was administered. The results demonstrate that when exposed to the voter registration process, student attitudes became more negative.

Joshua Scacco (Donna Weimer) Lebanon, PA

INAUGURAL IN CRISIS: A NEO-ARISTOTELIAN ANALYSIS OF GEORGE W. BUSH'S ADDRESS IN 2001

George W. Bush was inaugurated president after one of the most divisive elections in American history. Seen as politically illegitimate by a majority of the public, Bush faced a deficit of credibility that was both a limitation and opportunity placed on himself and the audience. Using the Neo-Aristotelian approach, I argue that Bush met this credibility constraint and increased his ethos. Specifically, Bush employed style and delivery from Aristotle's five canons of rhetoric to enhance his intelligence, goodwill and character in order to sound a centrist theme.

Abby Sener (Karen Rosell) Marietta, PA

PROPAGANDA AS ART: THE POLITICAL MURALS OF THE BOGSIDE ARTISTS

There has been a longstanding tradition of murals in Northern Ireland. Openly political, the murals have presented the sentiments of Unionists since the early 20th century. More recently, the Republicans have begun to create their own murals using a greater variety of themes than their Unionist counterparts. These murals are a part of a larger question: can propaganda be considered art? I argue that the murals are art, regardless of their overt political nature. To explore this issue, I focus on a group of men known as the Bogside Artists, whose works are located in Derry, Northern Ireland. Four of their murals will be presented in the context of Jacques Maquet's three principles of composition: geometry, organic form, and dynamism. I will also analyze the murals from a fourth dimension, that of universality. The works of these artists will then be compared to political artworks by Goya, Delacroix, Rivera and Daumier. Through this analysis, I hope to provide a compelling argument that the works of the Bogside Artists should, first and foremost, be considered art rather than propaganda. Finally, they deserve as much respect in the world of art as works by historically renowned artists.

Cecelia Shertz (Michael Boyle) Ebensburg, Pennsylvania

Investigation of inhibitory potential of certain peptides on the Streptococcal enzyme IdeS

Group A *S. pyogenes* is a gram positive bacteria that secretes the cysteine protease IdeS (IgG-degrading enzyme of Streptococci). IdeS is highly specific and its only known substrate is Immunoglobulin G (IgG). In the present study, a

western immunoblotting assay was optimized to screen a group of potential competitive inhibitors, which were developed in collaboration with the University of Virginia. Of the initial peptides screened, only two showed inhibitory potential, a result that was reproducible. Neither of these peptides contained sequences that encompassed the predicted target. Prior studies using synthetic peptides for this region had also failed to identify a peptide substrate suggesting the existence of an exosite and a conformational change being required for full enzymatic function.

Jason Shiring (Todd Gustafson) Pittsburgh, PA

EFFECTS ON VARIOUS ORGANISMS FROM AN INTRODUCTION OF KOI (*CYPRINUS CARPIO SSP.*) INTO AN ARTIFICIAL POND

Trophic cascade is closely related to lake remediation in several ways. In understanding the concept of trophic cascade, one can accurately apply biological or chemical remediation measures to “polluted” lakes without making the situation worse. This study has been conducted to see if a trophic cascade can be seen in an artificial pond due to the introduction of fish. Because every lake system is different, this study will pinpoint a few species of a larger system to test for changes which could be due to the introduction of fish. This study will help to demonstrate that the concept of trophic cascade exists from a top-down control model. The expected results for this study are that throughout a four month period, the introduction of fish, fantail koi (*Cyprinus carpio ssp.*), will cause direct and indirect effects on several species in an artificial ecosystem.

Dan Sidor (Mark Pearson) Phoenixville, PA

DEVELOPING A NON-INVASIVE IMAGING SYSTEM FOR BLOOD FLOW THROUGH SMALL VESSELS OF THE NAILFOLD

Blood flow through vessels has been studied extensively through invasive procedures but little work has been done non-invasively. Such a system would allow for investigating and diagnosing disorders affecting the circulation, such as diabetes and hypertension. In this initial study a non-invasive imaging system was developed to visualize blood flow in the capillaries of the nailfold. The system is comprised of modified microscope, mercury source, and a green filter to apply a specific wavelength of light that can pass through skin to be preferentially reflected by red cells. Videos were captured directly onto a computer using in-house software controlling a Matrox frame grabbing board. Currently the system is able to visualize vessel morphology, blood flow, and even single white cells rolling along vessel walls. The next stage of this study is to increase optical magnification and make use of digital image processing to improve resolution.

Adam J. Stanley (Donna Weimer) Huntingtown, MD

A NATION MOVED

On September 4th, 2005, a few short days after Hurricane Katrina pummeled the United States Gulf Coast, Aaron Broussard, the President of Jefferson Parish in New Orleans, gave a breathtaking speech on CNN detailing the bureaucratic disaster that crumbled U.S. government's Hurricane relief efforts. He sent out a desperate plea to rouse support and action for the people suffering and dying along the coast because of the U.S. Government's utter inaction. Using a method of analysis known as the Neo-Aristotelian Approach, I investigate what made his speech such a success. I explore Broussard's rhetorical situation as well as an in-depth analysis of his strategic uses of organization, style, and delivery which made his speech so effective that it would move an entire country to act upon his words.

Karen Stringer (Jay Hosler) Bellefonte, PA

RESEARCH IN COMICS: EYE MOVEMENTS ASSOCIATED WITH PROCESSING OF IMAGES AND TEXT

This work involved the use of an eye-tracking device to trace individuals' eye movements while reading comics in two separate experiments. Eye movements of subjects were tracked, and fixation times were analyzed to compare the time readers spent looking at text versus the time spent looking at the illustration in each panel. Four “Peanuts” comic strips (2 wordless strips and 2 strips that included text) were presented in experiment 1 and in experiment 2 subjects were shown four comic pages (2 color and 2 non-color). Preliminary data indicates that information is retained better from color versus non-color comics. These findings suggest that subjects may have had more difficulty constructing meaning from images in the wordless comic strips compared to strips also provided verbal cues. The same is true for color versus non-color comics, with information extraction and processing being more difficult from non-color comics.

Stephanie Tyler (David Sowell) Meshoppen, PA

ECUADOR AND THE STRUGGLE OF PERSONS WITH DISABILITIES

This presentation focuses on the struggles of persons with disabilities in Ecuador and the social structures that exist to care for them. The research done concludes that poverty is one of the central causes for so many disabilities in Ecuador. Both governmental and non-governmental social structures will be examined. Data for this research comes from interviews and visits to a service institution in Ecuador and through scholarly books, journals and official websites. La casa de la caridad in Ecuador, an orphanage for abandoned children with disabilities will serve as a case study.

Maria Welch (Richard Hark and Michael Boyle) Avis, PA

Antimicrobial effects of triclosan and triclosan analogs on *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Escherichia coli*.

Triclosan, a trichlorinated phenoxy phenol, is a common antibacterial agent found in many healthcare products. Its widespread use is potentially hazardous to the environment and has resulted in the development of triclosan-resistant strains of bacteria. The purpose of my study was to determine if an effective chemical analog could be made that worked as well as triclosan and was also more environmentally friendly. In collaboration with Joe Houck, a series of various triclosan analogs were synthesized and tested for activity against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Escherichia coli*. Seven analogs were identified that displayed antibacterial activity comparable to triclosan. Further investigation of these analogs will increase our understanding of their antimicrobial properties.

Sarah Anne Wharton (David Sowell) Lincoln University, PA

VISIONS OF THE SOUTHWEST: A NEW MEXICO PANORAMA

A photographic essay depicting landscape, cultural, and religious images of the state of New Mexico will be presented. The photographs were taken in January 2006 and will be developed with black and white processing in the Juniata darkroom. Each will have a short caption or description to explain it, and there will probably be a short written essay/feature to go along with the visual aspects of the presentation.

Melissa Wilson (Sharon Yohn) Mount Joy, PA

NUTRIENT AND SEDIMENT LOADING TO RAYSTOWN LAKE DURING BASE AND STORM FLOW

A baseline study was conducted on the Raystown Branch of the Juniata River above Raystown Lake during the summer and fall of 2005 to determine nutrient and sediment loading. Nitrate concentrations tended to increase during storm events at Dunning Creek and Saxton, and decrease at Yellow Creek, suggesting that nitrates enter the system differently on each tributary. Yellow Creek had the highest nitrate concentrations, and contributed a greater nitrate load to the Raytown Branch. Total phosphorous concentrations usually increased during storm events at all sampling sites. Total suspended solids increased during storm events, and each sampling site showed similar concentrations.

Winnie ChingLam Wong (Lorraine Mulfinger) Hong Kong, China

ANALYSIS OF N-FORMYLMELITTIN USING SELDI-TOF MS

Melittin, an active hemolysin, is the major proteinaceous component of honey bee (*Apis mellifera*) venom and is an active hemolysin. In 1967, Kreil and Kreil-Kiss applied electrophoresis of peptide digests to show that 10% of the melittin found in honey bee venom is modified by formylation of the N-terminal glycine of this 26 amino-acid residue. This research shows that the 28-dalton mass difference between N-formylmelittin and non-formylated melittin allows the relative abundance of these two forms of the peptide to be rapidly determined in samples analyzed by Surface Enhanced Laser Desorption Ionization-Time of Flight Mass Spectroscopy (SELDI TOF MS). This methodology was used to determine the relative proportions of N-formylmelittin and non-formylated melittin in venom samples and to follow the chemical formylation of non-formylated melittin. Hemolysis assays were conducted to compare the lytic activities of samples having different amounts of N-formylated melittin.

Becky Zajdel (Jack Barlow) Pittsburgh, PA

INVESTIGATING CZECH ROMA ASYLUM SEEKERS

Many Roma have sought refugee status in other countries as a result of the violence and the discrimination they face in the Czech Republic. Since the borders of the EU have opened to a number of states in Central and East Europe

(CEE), many Roma have been caught in an “asylum trap”, where their asylum claims have lost support due to the fact that they can now legally work and migrate to other countries in Europe. What has changed for the Roma since the fall of communism that would warrant seeking refugee status? How have the governments of the United States, the UK, and Canada treated their asylum claims? I seek to answer these questions as well as ask what could be in store now that the Czech Republic is part of the European Union.

Ahmed Javaid Zeerak (Jack Barlow) Kabul, Afghanistan

STATE FORMATION, GOVERNANCE, AND POST-WAR RECONSTRUCTION IN AFGHANISTAN

The central focus of this paper is to study and analyze the process of formation of the modern state in Afghanistan from a historical perspective, and then to discuss the relevance of the lessons learnt in the past, to current state-building efforts in Afghanistan. Some scholars argue that given Afghanistan’s ethnic, cultural, and religious diversity, and its uniquely arduous topography, the “nation state” model faces too many complications to successfully develop in Afghanistan. This paper argues that the roots of the recurrent problem of state failure and collapse throughout Afghanistan’s history lay not in the inaptness of the model but rather in the way that the model is applied to society. The key to understanding state failure and collapse in Afghanistan can be found in the evolution of the relationship between society and the state.

Amber Ziegler (Jill Keeney) Hershey, PA

ANALYSIS OF GENOMIC LOCALIZATION OF *SACCHAROMYCES CEREVISIAE* TY1 MOBILITY EVENTS IN MUTANT STRAINS

The Ty1 yeast retroelement transposition process is temperature sensitive. We have identified mutants which allow for increased Ty1 mobility at high temperature and are dependent on the recombination/repair pathway. Quantitative assays indicate increased mobility in mutant strains at permissive temperature. A PCR-based assay to clone genomic events occurring in wild type and mutant strains at normal and high temperature characterizes the molecular nature of these events. Wild type transposition events are found in expected locations. In *sir4* null strains, approximately half of mobility events are outside the expected region. Analysis of mobility events in other mutants is in progress.

ETHICAL TRIAGE FOR PROJECTED BIRD FLU EPIDEMIC

(Janet Lewis)

This class has worked over the first half of the semester to develop a system of allocating scarce medical resources (vaccinations, Tamiflu, respirators) based on ethical considerations for the community of Huntingdon. Ultimately their results will be presented to the Ethics Committee of the JC Blair Hospital. They have researched the biological and medical nature of Avian Bird Flu, projected patterns of arrival, the nature of epidemics and pandemics. Additionally they have gathered information about the community and have interviewed both community leaders and medical staff about the needs of the community and of physicians. From this information they will construct a system, based on ethical principles as well and factual information, to allocate necessary resources should they be scarce.

Documentary Shorts: My Juniata

(Kevin Clark)

“My Juniata,” quick takes on various aspects of student life at Juniata College

A series of short videos created and presented by students participating in the special topic course EN299 Writing for Television and Radio.

**The Organizing Committee would like to thank:
Heather Bloom, Lynn Cockett, Amy Kyle, Joel Pheasant and Chris Sowell
for all of their efforts on this event.**

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Symposium and the faculty sponsors, and judges.**

Organization Committee

Jim Tuten
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Gerald Miceli
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