3-23-2012

# 2012 Program: Honors Student Symposium

University of Dayton. University Honors Program

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***The thesis component of the Honors Program consists of a three-semester, six-credit-hour project that culminates in a significant research contribution, performance, or body of creative work.***

*The Honors thesis project involves a collaboration with one or more faculty members who help direct and focus the student's original thesis topic.*

*The University Honors Program sponsors the Honors Students Symposium as an opportunity for the students to present their theses to the University community in a professional setting.*

**The Patrick F. Palermo Honors Program Founders Fund provides support for substantive Honors thesis projects "that involve international research, service and leadership in the community, or which advance the realization of a just society."**

**The awardees for 2011-12 are Amanda Fioritto, Monica Guisfredi and Rebecca Young.**

The University of Dayton

## University Honors Program

presents the

# *Honors Students Symposium 2012*

March 23, 2012
1:00 to 5:00 pm
Kennedy Union

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## *Arts and Sciences*

### Humanities

*"Boldly Rise and Claim Equality in Yonder Skies": The French Revolution in Early American Historical Imagination, 1789-1800*
Jordan E. Taylor ..... 3:20 pm, Room 312

*Empathetic Experience of Beauty, The*
Halle S. Trapp ..... 1:40 pm, Room 207

*Fixing The Frame*
Andrew K. Kelly ..... 3:00 pm, Room 222

*"I Love My Country, But I Can't Go Back": Iraqi Refugee Lives in Amman*
Lindsey E. Cummings ..... 1:00 pm, Room 331

*33: Flight and Flightlessness in the American Identity*
Michael J. Winn ..... 2:00 pm, Room 207

### Life and Physical Sciences

*Applying Genetic Programming to Develop a Rubik's Cube Solver*
Brian T. Bradley ..... 3:40 pm, Room 310

*Case Studies: The Experiences of Gifted Females in Mathematics*
Danielle M. Bott ..... 4:40 pm, Room 310

*Comparison of Notophthalamus Viridescens Transposon Expression in the Dorsal and Ventral Iris during Lens Regeneration*
Glenna M. Knape ..... 2:20 pm, Room 312

*Drosophila Model to Study Birth Defects in the Eye, A*
Katelin E. Hanes ..... 1:20 pm, Room 331

*Effects of Silver Nanoparticles on Mouse Embryonic Stem Cell Fate, The*
Christopher J. Stucke ..... 3:20 pm, Room 331

*Inhibition of the PriA and PriB Primosome Proteins of the Neisseria Gonorrhoeae Replication Restart Pathway*
Hayley E. Ward ..... 2:00 pm, Room 312

*Nickel, Copper and Zinc-Centered Ruthenium Substituted Porphyrins: Effect of Transition Metals on Photo-Induced DNA Cleavage and Photo-Induced Melanoma Cell Toxicity*
Patrick J. Sweigert ..... 2:20 pm, Room 310

*Reprogramming Fibroblast Cells into Stem-Cell-Like Cells*
Christopher J. Kovaleski ..... 3:00 pm, Room 331

*Silver Nanoparticle Life History Toxicity is Reversed by Vitamin C in Drosophila Melanogaster*
Caitlin B. Cipolla-McCulloch ..... 2:40 pm, Room 312

*Temporal and Spatial Distribution of an Anuran Chytrid Fungus: Comparison of Amphibians from Fragmented Forests in Hardin County, Ohio*
Lauren L. Charbonneau ..... 1:40 pm, Room 312

*Visualizing Evolution through Differences in Gene Expression*
David J. Tacy ..... 4:00 pm, Room 312

### Social Sciences

*Banning the Burqa: France and the Specter of Colonialism*
Sarah F. Edwards ..... 1:40 pm, Room 310

*Beyond the Golden Door: Exploring the Integration of Iraqi Refugees in the United States*
Amanda L. Fioritto ..... 1:40 pm, Room 331

*Catholic Response to Refugee Resettlement: A Case Study of Catholic Social Services in Dayton, Ohio, A*
Samantha L. Tsuleff ..... 4:00 pm, Room 331

*Effects of Friendship on College Adjustment, The*
Paul T. Enlow ..... 3:40 pm, Room 331

*Egyptian Revolution, The*
John E. McGinnis ..... 3:00 pm, Room 312

*Human Trafficking Unveiled: Identifying Traffickers and Bringing Them to Justice*
Briana M. Hollis ..... 4:00 pm, Room 310

*Internet Risk Awareness as a Mediator for the Relationship Between Age and Privacy Settings on* Facebook
Anna J. Scott ..... 3:20 pm, Room 310

*Mediating Effects of Rumination between Perfectionism and Self-Forgiveness, The*
Katherine A. Earl ..... 2:40 pm, Room 310

*Predictors of Cellular Phone Use While Driving Amongst Parents of Young Children: A Theory of Planned Behavior Approach*
Ming Yue Chan ..... 1:20 pm, Room 312

*Privacy in Public: Personality and Eriksonian Theory as Applied to College Students'* Facebook *Disclosures*
Claudia E. Clark ..... 3:00 pm, Room 310

*Same Old (New) Deal? Examining the Determinates of American Recovery and Reinvestment Act Spending*
Amy A. Pancher ..... 2:00 pm, Room 310

*"To Prepare the Revolution in the Family": Girls' Education in French Protectorate Morocco (1912-1956)*
Rebecca L. Young ..... 1:20 pm, Room 310

*US Immigration: The Power Struggle Between States and the Federal Government*
Sariana L. Garcia-Ocasio ..... 2:20 pm, Room 331

*Visual Cues used for Relative Distance Judgements in 2D Displays*
Laura A. Janosko ..... 1:00 pm, Room 312

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## *Business Administration*

*Do Dividends Matter: An Empirical Analysis of the Impact of Dividends on Portfolio Stock Selection, Portfolio Weights, and Portfolio Returns for S&P 500 Stocks over the Period 2005 to 2010*
Gregory J. Castell ..... 2:00 pm, Room 222

*Exploring the Job Shop Queuing Environment*
Zachary M. Kaylor ..... 2:20 pm, Room 222

*IASB Presentation of Items of Other Comprehensive Income: An Analysis of Comment Letters, The*
Katherine E. Seager ..... 3:40 pm, Room 222

*Kosovo, The Young Europeans: An in-Depth Study of the Effect That the National Branding Campaign Has Had on the Kosovar Population*
Annea Hapciu ..... 1:00 pm, Room 222

*Minor League Baseball from 1998-2011: Tradition, Success and the Recession*
Jacob L. Rosen ..... 4:00 pm, Room 222

*ROA and ROE as Determinants of Quality in Portfolio Management*
Joseph J. Capka ..... 1:40 pm, Room 222

## *Education and Allied Professions*

### Health and Sport Science

*Comparison of Metabolic Costs of Forward and Backward Treadmill Walking in Adult Females with a BMI of ≥30.0 and <40.0, A*
Chelsea M. Boch ..... 4:00 pm, Room 207

*Effects of a Structured Pedometer Exercise Program on Blood Pressure and BMI of Children, The*
Stephanie A. Recko ..... 3:20 pm, Room 222

*Feasibility and Effect of a Kickboxing Training Program on the Balance, Gait and Overall Quality of Life of Persons with Multiple Sclerosis: A Case Series, The*
Michele L. Baeder ..... 4:20 pm, Room 211

*Metabolic Equivalents of College Male Athletes*
Kathleen M. Rusbacky ..... 3:40 pm, Room 207

### Teacher Education

*Cultural Competence: A Personal Journey to Becoming a Culturally Relevant Educator*
Margaret M. Edison ..... 4:20 pm, Room 331

*Language: The Key to Creating a Culturally Charismatic Classroom*
Sheila M. Heaton ..... 4:40 pm, Room 331

## *Engineering*

*Approaches to Achieving Community Energy Reduction*
Adam J. Ferguson ..... 3:40 pm, Room 211

*Appropriate Technology for Extraction of Essential Oils from Orange Peels in La Paz, Bolivia*
Monica A. Guisfredi ..... 1:40 pm, Room 211

*Artificial Neural Networks and Their Use in Process Monitoring and Diagnosis of an Industrial Injection Molding Process*
Rebecca L. Greider ..... 1:20 pm, Room 207

*Bleed Hole Location, Sizing and Configuration for Use in Hypersonic Inlets*
Leslie A. Sollmann ..... 4:40 pm, Room 222

*Carbon Nanofluids as New Liquid Coolants*
Lawrence W. Funke ..... 3:00 pm, Room 211

*Design, Prototyping and Evaluation of an Elastically-Based Mechanical Starter for Automotive Engines*
Travis M. Schubert ..... 3:20 pm, Room 211

*Effect of Heat Treatment and Surface Functionalization on the Bio-Kinetic Behavior of Carbon Nanomaterials, The*
Kevin M. Donnelly ..... 2:20 pm, Room 211

*Effects of Pipe Orientation on Multi-phase Flow Patterns*
Heather N. Nathaniel ..... 3:40 pm, Room 312

*Engineering Viral Nanoparticles for Applications in Therapeutic Cancer Therapy*
Mary J. Ryan ..... 3:00 pm, Room 207

*Exploring the Effects of a Common Wastewater Toxin on the Output of a Microbial Fuel Cell*
Mary A. Untener ..... 2:40 pm, Room 207

*High Temperature Gas Chromatographic Analysis of Chlorella Vulgaris for Use as a Bio-Fuel*
Ronald A. Zeszut ..... 3:20 pm, Room 207

*Obstacle Avoidance Techniques as Applied to Unmanned Aerial Systems*
Matthew L. Hagenbuch ..... 2:20 pm, Room 207

*Varus Knee Alignment and Gait in Healthy College-Aged Females*
Danielle E. Bare ..... 4:20 pm, Room 222

*Versatile Biomass-to-Energy Using Hyperthermophilic Microbial Fuel Cells*
Henry L. Aldridge ..... 2:00 pm, Room 211

# 1:00 pm

## Lindsey E. Cummings
**1:00 pm, Room 331**

History and International Studies
2011 Thesis Fellow

Ellen Fleischmann, PhD, Thesis Advisor
History Department
Caroline Merithew. PhD, Thesis Advisor
History Department

**Thesis Title**
***"I Love My Country, But I Can't Go Back": Iraqi Refugee Lives in Amman***

**Description**
The 2003 invasion of Iraq, and the subsequent toppling of Saddam Hussein's regime, left the country in a state of complete chaos. While there are huge challenges currently being addressed inside Iraq as the new leaders attempt to re-create a stable and legitimate government, there are also millions of Iraqis who have become refugees over the last eight years who face challenges it seems no one can adequately address. The goal of my project is to understand the major sources of identity for Iraqi refugees in Jordan, and to take a unique look at Iraq's history from the perspective of its own exiled people. By speaking directly to Iraqi families living in Jordan—representing a variety of experiences, religious traditions, political affiliations, and economic situations—one can begin to understand who the exiled Iraqis are and how their particular history is unlike any other refugee group.

## Annea Hapciu
**1:00 pm, Room 222**

Entrepreneurship and Marketing
2011 Thesis Fellow
2011 Hull Fellow

Randy Sparks, PhD, Thesis Advisor
Management and Marketing Department

**Thesis Title**
**Kosovo, The Young Europeans*: An in-Depth Study of the Effect That the National Branding Campaign Has Had on the Kosovar Population***

**Description**
This thesis analyzes the effect that *Kosovo, the Young Europeans*, the country branding campaign primarily geared towards transforming perceptions of the international community towards Kosovo and its people, had on the current Kosovar population. The aim of the study involves assessing whether the campaign affected feelings of patriotism, optimism, satisfaction and justice amongst the Kosovar people. Furthermore, this thesis analyzes whether or not the national branding campaign has stimulated and instilled pro-social behaviors — voting, protesting and entrepreneurship — within them. The primary research study includes 500 surveys and interviews in 5 major regions of Kosovo, as well as a portion of on-line questionnaires.

## Laura A. Janosko
**1:00 pm, Room 312**

Psychology

Benjamin R. Kunz, Professor, Thesis Advisor
Psychology Department

**Thesis Title**
***Visual Cues used for Relative Distance Judgements in 2D Displays***

**Description**
A 2D display of a desktop with between 5 to 8 objects will be presented to participants. Subjects will participate in three conditions: control (simulating objects with correct texture and shadow information), correct shadow information with incorrect texture information, and correct texture information without shadows. Relative distance judgments will be made between objects to determine which visual cues aid in spatial perception. An eye tracker will be used to determine on which visual cues participants rely to make distance judgments. Results will provide information on how 2D displays are used in spatial perception.

# 1:20 pm

## Ming Yue Chan
**1:20 pm, Room 312**

Psychology
2011 Thesis Fellow

Keri Brown Kirschman, PhD, Thesis Advisor
Psychology Department

**Thesis Title**
***Predictors of Cellular Phone Use While Driving Amongst Parents of Young Children: A Theory of Planned Behavior Approach***

**Description**
Research has shown that motor vehicle crashes are one of the main factors for pediatric unintentional injuries, which is the leading cause of death for children beyond the age of one in the United States. It has been proposed that due to technological developments, wireless devices such as cellular phones have become a serious distraction for drivers. This is because engaging in a conversation on a cellular phone is a cognitive distraction that takes away resources needed to process visual and auditory information from the road. Research has also shown that a driver's field of vision narrows when using the cellular phone. Further, it has been shown that drivers experience the same degree of impairment whether using hand-held or hands-free devices. As such, prevention efforts to reduce the risks of motor vehicle collisions are greatly urged. This study aims to explore, based on the Theory of Planned Behavior, which is the strongest predictor of cellular-phone driving in a population of parents.

## Rebecca L. Greider

**1:20 pm, Room 207**

Chemical Engineering
2011 Thesis Fellow

Michael Elsass, PhD, Thesis Advisor
Chemical and Materials Engineering Department

**Thesis Title**

***Artificial Neural Networks and Their Use in Process Monitoring and Diagnosis of an Industrial Injection Molding Process***

**Description**

This study utilizes a working artificial neural network (ANN) to monitor an industrial injection molding process. This ANN will be able to adapt and learn using training data obtained from the process. Outputs will be classified as normal or not normal based upon annotations made on the data by a plant engineer. This network will be able to recognize patterns in the data it analyzes and will also be able to model complex relationships in the data. The goal is to use the ANN to predict a future unusable part. ANN performance will be evaluated on how far in advance it can reliably predict an unusable part: several parts in the future versus the next one to be produced.

## Katelin E. Hanes

**1:20 pm, Room 331**

Biology
2011 Thesis Fellow

Madhuri Kango-Singh, PhD, Thesis Advisor
Biology Department

**Thesis Title**

***A Drosophila Model to Study Birth Defects in the Eye***

**Description**

Micropthalmia and anophthalmia are congenital birth defects which result in severe growth defects in eyes resulting in small eyes or visual field. However, the mechanism behind why these defects occur remains unknown. Eye development involves (a) growth of the eye field, and (b) the differentiation of the different cell types. Using the well-established model organism Drosophila melanogaster, we will study several genetic pathways known to be required for the normal differentiation of retinal cell types. We propose one aim to study if the generation of uncommitted precursor cells under the regulation of Hippo pathway may play a role in the determination of final eye size. Specifically, we will work to understand how eye size is rectified and the mechanism that does this, as well as if the hippo pathway is acting alone or in conjunction with another pathway.

## Rebecca L. Young

**1:20 pm, Room 310**

International Studies and French
2011 Palermo Fellow
2011 Thesis Fellow
2010 and 2011 Hull Fellow

Ellen Fleischmann, PhD, Thesis Advisor
History Department

**Thesis Title**

***"To Prepare the Revolution in the Family": Girls' Education in French Protectorate Morocco (1912-1956)***

**Description**

In early 20th century Morocco members of the French protectorate government, fearful of upsetting the conservative culture, cautioned against beginning female education, warning that "to establish female education is to prepare for the revolution in the family." Despite these fears, the instruction of girls began. In this thesis, using archival research, I examine the inception and evolution of a new paradigm which changed the country.

# 1:40 pm

## Joseph J. Capka

**1:40 pm, Room 222**

Economics, Finance and Spanish
2009 and 2010 Hull Fellow

John Rapp, PhD, Thesis Advisor
Economics and Finance Department
Robert Dean, PhD, Thesis Advisor
Davis Center for Portfolio Management

**Thesis Title**

***ROA and ROE as Determinants of Quality in Portfolio Management***

**Description**

Does quality matter? Since 1956, Standard & Poor's has offered a rating system that differentiates stocks by quality, known as its Quality Rankings. From their perspective, quality is a function of the growth and stability of earnings and dividends over time. While a number of past studies have concluded that stocks with a high quality ranking tend to outperform the market, some studies have identified variability among rankings, which suggests that a more complete set of ranking criteria is needed. In my study I have tested the hypothesis that both Return on Equity (ROE) and Return on Assets (ROA), when considered as criteria for portfolio construction, generate additional performance above the S&P 500. Through an analysis of hypothetical portfolios of quality-ranked stocks with high ROE's and ROA's, I have concluded that both ROE and ROA are additional determinants of quality and hence portfolio performance.

## Lauren L. Charbonneau

**1:40 pm, Room 312**

Biology
2011 Thesis Fellow
2010 Hull Fellow

P. Kelly Williams, PhD, Thesis Advisor
Biology Department

### Thesis Title

***Temporal and Spatial Distribution of an Anuran Chytrid Fungus: Comparison of Amphibians from Fragmented Forests in Hardin County, Ohio***

### Description

Chyridiomycosis disease, caused by the chytrid fungus Batrachochytrium dendrobatidis (Bd), has contributed to anuran population declines and extinctions worldwide. The disease is known from Africa, Asia, North America and Australia. In Ohio the geographic distribution of the fungus and the impact on amphibian species is unknown. The impact of this pathogen, however, varies markedly among amphibian species and populations. This project is focused on the detection of Bd in amphibian populations located in Lawrence Woods State Nature Preserve and fragmented forest woodlots in Hardin Country, Ohio. The project investigates the temporal change in infection by season and species. Comparison of populations within and between isolated populations will provide geospatial assessment of the distribution of the disease.

## Sarah F. Edwards

**1:40 pm, Room 310**

International Studies and French
2011 Thesis Fellow
2011 Hull Fellow

Simanti Dasgupta, PhD, Thesis Advisor
Sociology, Anthropology and Social Work Department

### Thesis Title

***Banning the Burqa: France and the Specter of Colonialism***

### Description

In April 2011 France passed the "Law of the Uncovered Face." This law prohibits any article of clothing, religious or no, from covering the face, excluding safety and sporting equipment. The legislation, significantly and rather disproportionately affected the Muslim population in France. Considering that the majority of this population are immigrants from former French colonies, it has spurred debates regarding the racial and religious politics underscoring this piece of legislation. Taking this legislation as its point of departure and the burqa as its material and symbolic representation, this research looks at the specter of colonialism that continue to infect French society. It specifically explores the collective memory of colonialism by comparing this ban with past legislation, legislative behaviors in France, what gendered implications exist and the colonial relationships that ended in the late 1900s.

## Amanda L. Fioritto

**1:40 pm, Room 331**

Sociology and International Studies
2011 Palermo Fellow
2011 Thesis Fellow
2011 Hull Fellow

Theo Majka, PhD, Thesis Advisor
Sociology, Anthropology and Social Work Department

### Thesis Title

***Beyond the Golden Door: Exploring the Integration of Iraqi Refugees in the United States***

### Description

The displacement of Iraqis as a result of the War in Iraq is one of the largest refugee crises in the world today. Thousands of Iraqis have been resettled in the United States and are attempting to start over. However, the transition from one's home to host country is often marked by a series of obstacles, including learning a new language, finding work, being accepted by the local community, and overcoming a variety of mental health issues. Interviews with local refugees and community leaders show that Iraqis are not only dealing with the above difficulties, but must also navigate around these barriers within the confines of a national resettlement system much in need of reform. The research, then, focuses on both the local integration of Iraqis in Dayton, as well as broader national policies that influence the refugee resettlement system as a whole. From there, recommendations for improving resettlement are made.

## Monica A. Guisfredi

**1:40 pm, Room 211**

Chemical Engineering
2011 Palermo Fellow
2011 Thesis Fellow
2011 Hull Fellow

Malcolm Daniels, PhD, Thesis Advisor
Electrical and Computer Engineering Department
Amy Ciric, PhD, Thesis Advisor
Chemical and Materials Engineering Department

### Thesis Title

***Appropriate Technology for Extraction of Essential Oils from Orange Peels in La Paz, Bolivia***

### Description

Located near the rainforest, La Paz, Bolivia, has a large amount of waste orange peels currently being left unused that have the potential to become profitable since orange oil, an essential oil that retains the distinctive essence of the original plant, can be extracted from the peel. Essential oils, or concentrated extracts that are derived from a plant's leaves, roots, blossoms, or other organic materials, have become integrated into society mostly as flavorings and fragrances, but can also be used in other areas such as medicine and aroma-therapy. This project investigates past and current processes of essential oil extraction from orange peels, and an appropriate small-scale distillation set-up was designed and built that is technologically feasible and sustainable for La Paz, Bolivia.

## Halle S. Trapp

**1:40 pm, Room 207**

English
2011 Thesis Fellow

Andrew Slade, PhD, Thesis Advisor
English Department

**Thesis Title**
***The Empathetic Experience of Beauty***

**Description**
What is it that makes something beautiful? Although the universality of this experience is obvious, most people do not realize the complexities and implications of beauty. Because beauty is not part of contemporary critical talk, and is actually denounced, Wendy Steiner attempts to bring the concept back as a producer of an empathetic relationship in Venus in Exile. She exemplifies how the recognition of beauty of women in art has become transformed into something perverse, ultimately resulting in the view of women as possessions and sex objects. The underlying catalyst for this fetishized image of women rests in Sigmund Freud's attribution to the basis of religion: the Oceanic Feeling. In my thesis, I will demonstrate that this limitless and unbounded sensation destroys the experience and power of beauty to fabricate empathy.

# 2:00 pm

## Henry L. Aldridge

**2:00 pm, Room 211**

Chemical Engineering
2011 Thesis Fellow

Donald Comfort, PhD, Thesis Advisor
Chemical and Materials Engineering Department

**Thesis Title**
***Versatile Biomass-to-Energy Using Hyperthermophilic Microbial Fuel Cells***

**Description**
Billions of gallons of wastewater are generated in the world each day, and great amounts of energy are used to dispose of it. Microbial fuel cells (MFCs) are an emerging biomass-to-energy technology, which break down organic materials in liquids while generating electricity. MFCs come in several forms and applications, including: micro-sized for medical use, sediment style for developing or remote locations, and larger-scale for industrial or environmental remediation. In this project a single-chamber microbial fuel cell was designed, constructed and operated using the hyperthermophilic achaeon *Sulfolobus solfataricus*, which are native to volcanic hot springs. The fuel cell was run using different sugars and configurations while output data was collected.

## Gregory J. Castell

**2:00 pm, Room 222**

Economics and Finance

John Rapp, PhD, Thesis Advisor
Economics and Finance Department
Robert Dean, PhD, Thesis Advisor
Davis Center for Portfolio Management

**Thesis Title**
***Do Dividends Matter: An Empirical Analysis of the Impact of Dividends on Portfolio Stock Selection, Portfolio Weights, and Portfolio Returns for S&P 500 Stocks over the Period 2005 to 2010***

**Description**
Because of a growing number of dividend-focused portfolios in the stock market today, an important issue is whether or not these portfolios create excess returns (alpha). Therefore, the purpose of this study is to determine if a portfolio of stocks focused on dividends can create alpha in both declining and rising stock markets.

To test this hypothesis I developed a "baseline" portfolio that has these general parameters: (1) stocks with Price-to-Earnings ratios less than the market, (2) expected earnings growth rate greater than the market, and (3) return on common equity higher than the market. The stocks in the baseline portfolio will be dollar-weighted respectively by their dividend yield, dividend growth rate, and dividend payout ratio for the highly volatile market period 2005 to 2010 and their returns will be compared to the S&P 500 returns to determine if alpha was created.

## Amy A. Pancher

**2:00 pm, Room 310**

Economics
2011 Thesis Fellow

Tony S. Caporale, PhD, Thesis Advisor
Economics and Finance Department

**Thesis Title**
***Same Old (New) Deal? Examining the Determinates of American Recovery and Reinvestment Act Spending***

**Description**
Some 21 months before the November 2010 elections, the United States Congress passed the American Recovery and Reinvestment Act of 2009, the primary goals of which were to preserve and create jobs, promote economic recovery, and to assist those most impacted by the recession. Previous studies have questioned whether political considerations played a role in the allocation of New Deal stimulus spending during the Roosevelt administration. The same question can be asked of the American Recovery and Reinvestment Act of 2009 — was the $275 billion in government grants, contracts, and loans allocated solely in accordance with the legislation's stated goals, or, considering the importance of an election held in a decennial census year and the subsequent congressional redistricting, did political determinates also play a role in how the funds were distributed?

## Hayley E. Ward

**2:00 pm, Room 312**

Biochemistry
2011 Thesis Fellow

Matthew Lopper, PhD, Thesis Advisor
Chemistry Department

**Thesis Title**

***Inhibition of the PriA and PriB Primosome Proteins of the Neisseria Gonorrhoeae Replication Restart Pathway***

**Description**

DNA replication is essential to the survival of all living organisms. DNA damage that occurs in bacterial cells can lead to cell death by inhibiting the replication of genetic material. Bacteria, such as *Neisseria gonorrhoeae*, have developed a method to avoid cell death due to premature termination of DNA replication called a DNA replication restart pathway. Previous research has determined that there are two proteins, PriA and PriB, which play an important role in this pathway. Collectively these proteins bind to the DNA and facilitate reloading of the replication machinery, thus initiating replication without an origin sequence. I identified a small number of lead compounds as inhibitors to PriA and PriB and examined further the method through which these inhibitors function. The inhibitors studied could potentially be developed into novel antibiotics against *N. gonorrhoeae*.

## Michael J. Winn

**2:00 pm, Room 207**

English

Joseph Pici, MA, Thesis Advisor
English Department

**Thesis Title**

***33: Flight and Flightlessness in the American Identity***

**Description**

These stories and their characters are connected by how they relate to a fictional highway: Highway 33. This highway, as both a medium for movement and a place itself, is the device by which relationships, place, and movement all interact and redefine each other. At large, I am exploring how Frederick Jackson Turner's Frontier Thesis (the idea that America is always defined by having an unexplored "frontier" to move toward) defines Americans and their relationships; by placing these characters at the threshold of their own personal frontiers, these stories attempt to address the question, "What now?"

# 2:20 pm

## Kevin M. Donnelly

**2:20 pm, Room 211**

Chemical Engineering
2011 Thesis Fellow

Khalid Lafdi, PhD, Thesis Advisor
Chemical and Materials Engineering Department

**Thesis Title**

***The Effect of Heat Treatment and Surface Functionalization on the Bio-Kinetic Behavior of Carbon Nanomaterials***

**Description**

Tissue engineering is a wide and rapidly growing field with many applications. As the field grows there has been a push to find improved materials to use in tissue scaffolds to improve their chemical and mechanical properties. Carbon nanomaterials have a wide variety of properties which could make them excellent scaffold materials. This study looks at four different carbon nanomaterials, which vary in size and heat treatment, to determine their respective cellular compatibilities and bio-kinetic effects. The study also tests the same materials with varying degrees of surface functionalization to determine its effect on the same cellular phenomenon.

## Sariana L. Garcia-Ocasio

**2:20 pm, Room 331**

International Studies and Political Science

Juan C. Santamarina, PhD, Thesis Advisor
International Studies Program

**Thesis Title**

***US Immigration: The Power Struggle Between States and the Federal Government***

**Description**

With this thesis I will evaluate how the topic of immigration is handled in the political forums of United States. Immigration is a topic of interest to many, which raises controversy in differing opinions regarding how it should be addressed. I look into the authority given to the states and to the federal government regarding immigration. I evaluate cases in which state's immigration laws have been deemed unconstitutional. With this thesis I aim to provide reasons why the topic of immigration should be handled by the federal government, given its constitutional authority. I will make a case for national unanimity when making policy decisions regarding immigration.

## Matthew L. Hagenbuch

**2:20 pm, Room 207**

Electrical and Computer Engineering
2011 Thesis Fellow

Raul Ordonez, PhD, Thesis Advisor
Electrical and Computer Engineering Department

**Thesis Title**
***Obstacle Avoidance Techniques as Applied to Unmanned Aerial Systems***

**Description**
Historically, unmanned aerial systems (UAS) such as the Predator/Reaper drone have been used almost exclusively in military applications. The growing concern for the lives of military personnel has fueled an effort to replace men with machines in dangerous missions wherever possible. The need has arisen to send UAS's into more complicated environments, such as urban areas or even inside buildings. Because of the complexity of navigating such environments via remote control, it has become more and more desirable to have these systems navigate autonomously. This thesis focuses on improving existing algorithms for autonomous navigation.

## Zachary M. Kaylor

**2:20 pm, Room 222**

Operations Management

John J. Kanet, PhD, Thesis Advisor
MIS, Operations Management and Decision Sciences Department

**Thesis Title**
***Exploring the Job Shop Queuing Environment***

**Description**
My research revolves around the job shop environment. The job shop is an environment in manufacturing where jobs arrive randomly and take a random amount of time to complete. For instance, a maker of specialized metal parts most likely involves some sort of job shop. The job shop can also represent a bottleneck in a larger manufacturing process. The main obstacle in the job shop is the queue of jobs waiting to be worked upon. The trick is to order the queue so as to perform the jobs to optimize for various metrics. These metrics vary and involve things such as the average time in shop to the aggregate lateness of the jobs. My research explores the repercussions of ordering the jobs using various queueing rules under a variety of conditions.

## Glenna M. Knape

**2:20 pm, Room 312**

Biology and Spanish
2011 Thesis Fellow
2010 Hull Fellow

Panagiotis Tsonis, PhD, Thesis Advisor
Biology Department

**Thesis Title**
***Comparison of Notophthalamus Viridescens Transposon Expression in the Dorsal and Ventral Iris during Lens Regeneration***

**Description**
The Eastern Newt, Notophthalamus viridescens, has regenerative abilities. This study delves into the ability of the newt to regenerate the lens of its eye from the iris following a lentectomy surgery. To regenerate, the dorsal and ventral regions of the iris dedifferentiate and proliferate, yet only the dorsal iris redifferentes to create a lens, rather than both the dorsal and ventral irises. Several candidate transposons, or sections of viral DNA incorporated into another organism's genome, were selected from a transcriptome to study. In order to compare the differences between the dorsal and ventral irises, the candidate genes' expression levels were monitored in the regenerating lens at 0-, 4- and 8-day time points following the surgery. The expression levels in the genes were compared to determine why only the dorsal iris is capable of regenerating the lens.

## Patrick J. Sweigert

**2:20 pm, Room 310**

Biochemistry
2011 Thesis Fellow

Shawn M. Swavey, PhD, Thesis Advisor
Chemistry Department

**Thesis Title**
***Nickel, Copper and Zinc-Centered Ruthenium Substituted Porphyrins: Effect of Transition Metals on Photo-Induced DNA Cleavage and Photo-Induced Melanoma Cell Toxicity***

**Description**
Synthesis and electrochemical properties of a diruthenium porphyrin complex and three subsequent complexes with nickel(II), copper(II), and zinc(II) ions inserted into the porphyrin center are outlined and characterized. DNA titrations of the complexes indicate that they interact strongly with DNA potentially through an intercalation mechanism. Irradiation of aqueous solutions of the complexes and supercoiled DNA shows nicking of the sugar-phosphate backbone of DNA for the nickel(II) and copper(II) complexes and complete photocleavage for the zinc(II) complex. Cell studies with dermal skin (normal) fibroblast and melanoma cells indicate the free-base porphyrin is toxic to both normal and melanoma cells, while the nickel(II) and copper(II) complexes are non-toxic to both cell lines when irradiated. The zinc(II) complex is non-toxic to normal cells but toxic to melanoma cells when irradiated under the same conditions.

# 2:40 pm

## Caitlin B. Cipolla-McCulloch

**2:40 pm, Room 312**

Biology and Religious Studies
2011 Thesis Fellow

Mark G. Nielsen, PhD, Thesis Advisor
Biology Department

**Thesis Title**

***Silver Nanoparticle Life History Toxicity is Reversed by Vitamin C in Drosophila Melanogaster***

**Description**

Nanoparticles (NPs) are particles that have one or more dimensions on the order of 100 nanometers or less. They are of interest because particles of such a small size have unique properties that differ from their bulk-sized counterparts, primarily due to their high surface-to-volume ratio. Nanoparticles are increasingly being used for manufacturing and consumer products. As a result, the chance of human exposure to these materials is increasing. Of particular interest in this regard are silver and titanium dioxide NPs, used in sunscreen, cosmetics and technological manufacturing. We show that silver, but not titanium dioxide particles, are toxic to longevity, reproduction and development. We were able to reverse these effects using antioxidants, which supports an oxidative stress model of nanoparticle toxicity and provides a means to remediate nanoparticle toxicity.

## Katherine A. Earl

**2:40 pm, Room 310**

Psychology
2011 Thesis Fellow

Lee Dixon, PhD, Thesis Advisor
Psychology Department

**Thesis Title**

***The Mediating Effects of Rumination between Perfectionism and Self-Forgiveness***

**Description**

Self-forgiveness is the set of changes an individual experiences when he or she becomes less inclined to act out against himself or herself, and more inclined to act compassionately toward himself or herself. Studies suggest that self-forgiveness is vital to the connection between psychological well-being and forgiveness. Self-forgiveness has been shown to be linked to the behavior of rumination. Rumination, an unproductive, repetitive method of thought, focuses on negative or distressing situations and on the possible reasons for and outcomes of the situations. Also related to rumination is the study of perfectionism, which is characterized by the desire of the individual to be perfect, to fear mistake-making, and to have high standards for self-performance. Though there is a wealth of research regarding the associations between forgiveness and rumination, as well as perfectionism and rumination, all three concepts of self-forgiveness, rumination, and perfectionism have never been studied in conjunction before.

## Mary A. Untener

**2:40 pm, Room 207**

Chemical Engineering
2011 Thesis Fellow
2010 Hull Fellow

Donald Comfort, PhD, Thesis Advisor
Chemical and Materials Engineering Department

**Thesis Title**

***Exploring the Effects of a Common Wastewater Toxin on the Output of a Microbial Fuel Cell***

**Description**

Microbial Fuel Cells (MFCs) provide a renewable way to produce electricity, while also doubling as a method to treat industrial wastewater streams. Microorganisms possess natural metabolic pathways to degrade contaminants and can therefore be utilized to clean wastewater. A MFC capitalizes on this contaminant degradation and utilizes the energy from the contaminant to extract electrons from the microbes to produce electricity. This project examines if it is possible to increase the electrical output of an MFC by introducing the toxin dinitrophenol to the bacteria. This toxin is commonly found in wastewater streams that might be processed by a MFC. Understanding the effects of toxins on MFC performance is crucial for moving toward commercial large-scale implementation of this renewable energy technology.

# 3:00 pm

## Claudia E. Clark

**3:00 pm, Room 310**

Psychology
2011 Thesis Fellow

Melissa Layman-Guadalupe, PhD, Thesis Advisor
Psychology Department

**Thesis Title**

***Privacy in Public: Personality and Eriksonian Theory as Applied to College Students'*** **Facebook** ***Disclosures***

**Description**

*Facebook* is an internet phenomenon. Research shows that personality affects amount and types of disclosure on users' profiles, especially traits of extroversion (energy from others or energy from self) and neuroticism (anxiety and control-orientation vs. calmness and less control emphasis). Research on these traits and their effects on *Facebook* is conflicting. Erik Erikson's theory of psychosocial development proposes crises at specific life stages that one must solve to live successfully. Studies have found that the level of development affects disclosure on social networking sites, but this research is scarce. This study focuses on the crises of "identity" and "intimacy." It aims to find how personality and development affect disclosure on *Facebook* profiles of college students. Participants will take a *Facebook*-use questionnaire and surveys on the factors of focus: extroversion, neuroticism, identity and intimacy. These results will be compared to the "information" section, the last "status update" and the profile picture of participants' *Facebook* profiles.

## Lawrence W. Funke

**3:00 pm, Room 211**

Mechanical Engineering

Khalid Lafdi, PhD, Thesis Advisor
Mechanical and Aerospace Engineering Department

**Thesis Title**
***Carbon Nanofluids as New Liquid Coolants***

**Description**
New technologies require greater cooling capacity than can be supplied by conventional fluids, such as water, ethylene glycol, or oil. The new nanofluids containing nanoparticles (one thousandth the thickness of a human hair) can significantly increase the cooling capacity of common fluids. This project aims to explore new fluids with added carbon nanoparticles. Ethylene glycol was used as the base fluid, and carbon nanoparticles with various crystallinities were added to the fluid. Fluids with different concentrations of additives (0 to 1%) were tested using three different apparatus to determine their cooling capacity under both static (stationary) and dynamic (in motion) conditions. It was found that the crystallinity and concentration of nanoparticles had a major effect. Results suggest that adding low concentrations of carbon nanoparticles with the proper crystallinity could greatly increase the heat transfer coefficient of the base fluid.

## Andrew K. Kelly

**3:00 pm, Room 222**

Communication
2011 Thesis Fellow

Anna Langhorne, PhD, Thesis Advisor
Communication Department

**Thesis Title**
***Fixing The Frame***

**Description**
An in-depth qualitative analysis of organizational culture was conducted of two non-profit, grassroots organizations that address poverty in the Dayton area. **Shoes4TheShoeless** was established two years ago and provides footwear to underprivileged children. **Homefull** was established more than 20 years ago and works to end poverty through advocacy, education and housing options for its clients. Interviews and on-site observations were completed at both organizations from November 2011 to January 2012. The structured interviews ranged in length from 25 minutes to more than an hour. The data was analyzed using a coding scheme and over-arching themes were analyzed. It was determined that organizational culture within grassroots organizations in Dayton shapes how the organizations operate and fulfill their service missions.

## Christopher J. Kovaleski

**3:00 pm, Room 331**

Biology
2011 Thesis Fellow

Yiling Hong, PhD, Thesis Advisor
Biology Department

**Thesis Title**
***Reprogramming Fibroblast Cells into Stem-Cell-Like Cells***

**Description**
Stem cells are a unique type of cell that have the ability to renew themselves through cell division and to differentiate into specialized cells (giving rise to the specific cells of the developed human body). Consequently, stem cells have potential to serve as therapeutic treatment because of their ability to differentiate into specialized new tissue.

This project is to identify a novel approach to derive pluripotent stem cells from fibroblasts through chemical treatments. These fibroblast cells will be converted from an elongated fibroblastic appearance to stem-cell-like cells using a combination of proteins and chemicals (RG 108, (R)-(+)-Bay K 8644, BIX 01294, and Trichostatin A). The converted stem-cell-like cells have been characterized with stem cell factor expressions that distinguish stem cells from differentiated somatic cells.

## John E. McGinnis

**3:00 pm, Room 312**

International Studies
2011 Thesis Fellow
2010 Hull Fellow

David W. Darrow, PhD, Thesis Advisor
History Department

**Thesis Title**
***The Egyptian Revolution***

**Description**
One year after the January 25 uprisings Egypt still finds itself in the midst of revolution. My thesis addresses the use of technology in shaping the Egyptian revolution, specifically the use of social media applications such as *Facebook*, *Twitter*, and *Youtube*. Interviews with Egyptians in Tahrir Square provide first-hand accounts of how social media influenced their decision to join the protests and to what degree social media brought people together against Mubarak's dictatorship. My thesis questions the West's version of events as a "*Twitter* Revolution," using network theory and personal accounts to measure *Twitter*'s role in the rebellion. Finally, my thesis analyzes internal Egyptian politics in order to understand where the country is headed and the implications these changes have for the region.

## Mary J. Ryan

**3:00 pm, Room 207**

Chemical Engineering
2011 Thesis Fellow

Donald Comfort, PhD, Thesis Advisor
Chemical and Materials Engineering Department
Nicole Steinmetz, PhD, Thesis Advisor
Biomedical Engineering Department, Case Western Reserve University

**Thesis Title**
***Engineering Viral Nanoparticles for Applications in Therapeutic Cancer Therapy***

**Description**
Most cancer therapies in use today result in adverse side effects to the patient. New technologies aim to reduce these side effects by targeted delivery of the drugs directly to the cancer cells, thereby minimizing many harmful side effects, such as the collateral death of healthy cells along with diseased cells. To achieve this, virus-like particles (VLPs) were engineered to serve as the backbone for cancer drug delivery systems. These VLPs were modified by addition of (1) a targeting molecule to locate the cancer, (2) a fluorescent tag to confirm affinity for cancer cells, and (3) a drug for killing the cancer cells. Results show that these molecules could be easily and efficiently modified. The molecules are shown to be taken up by cells and to be able to kill cancer cells in preliminary results.

# 3:20 pm

## Stephanie A. Recko
**3:20 pm, Room 222**

Exercise Physiology
2011 Thesis Fellow

Lloyd Laubach, PhD, Thesis Advisor
Health and Sport Science Department

**Thesis Title**

***The Effects of a Structured Pedometer Exercise Program on Blood Pressure and BMI of Children***

**Description**

The purpose of this study is to determine the effect of a structured pedometer walking program on the blood pressure and Body Mass Index (BMI) of children. The study utilizes a review of literature and case-study research. The aim of the study is to discover whether the use of pedometers, small devices that count the number of daily steps, and daily step goals are effective in encouraging children and youth to become more active and improve their health. The hypothesis is that the program will help motivate children and youth to become more active and improve their blood pressures and BMIs. The study found no statistically significant improvements in either blood pressure or BMI, but all subjects did improve their daily step count (2628.66 steps/day).

## Travis M. Schubert
**3:20 pm, Room 211**

Mechanical Engineering
2011 Thesis Fellow

Andrew P. Murray, PhD, Thesis Advisor
Mechanical and Aerospace Engineering Department
David H. Myszka, PhD, Thesis Advisor
Engineering Management and Technology Department

**Thesis Title**

***Design, Prototyping and Evaluation of an Elastically-Based Mechanical Starter for Automotive Engines***

**Description**

This thesis presents the design and prototyping of a torsion spring-driven mechanical starter for potential use in vehicle engines. Torsion springs are considered for this application for three primary reasons. First, a charged spring can deliver the brief but powerful burst of energy required during starting. Second, once the starting energy is stored in a mechanical state, as in a spring, conversion losses are eliminated like those present with the traditional battery to electric motor to engine arrangement. Third, these springs can be inexpensively charged by a motor and battery significantly smaller than those currently in use, thereby reducing the negative environmental impact associated with the disposal of those components. The realized design combines fundamental machine components into a new starter concept, a bench-top prototype of which was assembled for validation. Experiments and an accompanying analysis of the starter proved useful for sizing the device for commercial implementation, as well as identifying additional design concerns for a more road worthy prototype. This work is part of a larger effort on developing mechanisms that use elastic elements to harvest, store and power devices useful in automotive applications.

## Anna J. Scott
**3:20 pm, Room 310**

Psychology and PreMedicine
2011 Thesis Fellow

Melissa Layman-Guadalupe, PhD, Thesis Advisor
Psychology Department

**Thesis Title**

***Internet Risk Awareness as a Mediator for the Relationship Between Age and Privacy Settings on* Facebook**

**Description**

*Facebook*'s increasing popularity among college students has caused new issues regarding privacy on a website whose major aim is to foster communication via personal information sharing. However, this is not consistent across all ages. In fact, research has shown that as a person's age increases, the amount of information they share on the internet generally decreases. A new direction in research is to understand why, which was the aim of this study. Sixty undergraduate students were given a validated questionnaire which investigated how concerned each individual is regarding their safety and privacy on the internet. This information was compared to each person's *Facebook* privacy settings which were recorded during the study, followed by an analysis of these results.

## Christopher J. Stucke
**3:20 pm, Room 331**

PreMedicine
2011 Thesis Fellow

Yiling Hong, PhD, Thesis Advisor
Biology Department

**Thesis Title**

***The Effects of Silver Nanoparticles on Mouse Embryonic Stem Cell Fate***

**Description**

The use of silver nanoparticles in commercially made products is rapidly increasing and there is no regulation on the disposal of these nanoparticles. As human exposure to silver nanoparticles rises, this study determines the effects of this exposure on stem cell factor gene expression and stem cell fate. This was accomplished by introducing varying concentrations of silver nanoparticles into mouse embryonic stem cells for varying amounts of time. Western blot and immunoprecipitation techniques were run on these cells to determine how the responses of stem cell factor Oct4 differ from its normal function within the cell. In addition, this study also determines whether programmed cell death is occurring in response to the silver nanoparticle treatment. The results of the research provided necessary scientific data to improve or eliminate potential toxicity of nanoparticles, and information for relevant authority when approving products for consumer uses.

## Jordan E. Taylor

**3:20 pm, Room 312**

History
2011 Thesis Fellow

Michael Carter, PhD, Thesis Advisor
History Department

**Thesis Title**

***"Boldly Rise and Claim Equality in Yonder Skies": The French Revolution in Early American Historical Imagination, 1789-1800***

**Description**

I examine the manner that contemporary Americans' historical imaginations shaped their understanding of the French Revolution. In particular, this project studies the historical modalities of millennialism, the "paranoid style" and the imagined American Revolution, and their relationship with the emerging debate in the 1790s over the meaning of the American identity.

## Ronald A. Zeszut

**3:20 pm, Room 207**

Chemical Engineering
2011 Thesis Fellow

Philip Taylor, PhD, Thesis Advisor
Environmental Engineering Group, Research Institute
Richard Striebich, Thesis Advisor
Environmental Engineering Group, Research Institute

**Thesis Title**

***High Temperature Gas Chromatographic Analysis of Chlorella Vulgaris for Use as a Bio-Fuel***

**Description**

The objective of this Honors Thesis is to assess the potential for algae of the variety chlorella vulgaris to be made into a jet fuel. This will be done by measuring the amount and type of molecules in a sample of algae oil using a gas chromatograph. The chromatograph will separate the sample based on volatility (e.g. boiling point) of the species present. This data, when compared to known materials run on the gas chromatograph, will give information as to the composition of components which can be used as fuel. After gathering this experimental data, research will be conducted to find an efficient refining method. A basic cost estimation will be performed to project how economically feasible the process would be.

# 3:40 pm

## Brian T. Bradley

**3:40 pm, Room 310**

Mathematics

Dale Courte, PhD, Thesis Advisor
Computer Science Department

**Thesis Title**

***Applying Genetic Programming to Develop a Rubik's Cube Solver***

**Description**

Genetic programming, a method of developing code using evolutionary principles in a computer simulation, can theoretically be applied to any problem. This work explores the applicability of genetic programming to the generating a human-readable set of rules that could be used to solve the cube. This involved developing a language to describe solutions to the cube as a series of rules, an algorithm to process those rules, and a fitness function to describe how good a possible solution is. Because of the high dimensionality of the problem, the difficulty in creating a good fitness function, and the need to develop both good rules and good solutions simultaneously, the ultimate goal was not achieved. However, through the effort to apply genetic programming to develop a Rubik's Cube solver, valuable information was gathered on what needs to be done for such an attempt to be successful.

## Paul T. Enlow

**3:40 pm, Room 331**

Psychology
2011 Thesis Fellow

Jackson Goodnight, PhD, Thesis Advisor
Psychology Department

**Thesis Title**

***The Effects of Friendship on College Adjustment***

**Description**

The transition to college is a new and exciting time in a student's life. However, it may also become increasingly stressful due to rapid changes, new experiences, and added responsibilities. Friendship has been found to influence how well a student adjusts to college life, but the influences of individual aspects of friendship are not well understood. This study examines the effects friendship has on the transition to college as indicated by overall satisfaction and academic achievement. It is hypothesized that students will be better adjusted to college if their friends are academically focused and engaged in the university, if most interactions with friends occur in-person and thereby provide better social support, and if most close friendships are developed in college rather than maintained from high school.

## Adam J. Ferguson

**3:40 pm, Room 211**

Mechanical Engineering

Kevin P. Hallinan, PhD, Thesis Advisor
Mechanical and Aerospace Engineering Department

**Thesis Title**
***Approaches to Achieving Community Energy Reduction***

**Description**
Energy independence, climate change, natural resource depletion and a variety of other reasons have pushed cities, states and nations around the world to think about how they must transform their energy systems to adapt to diverse challenges now and in the future. Governments of all sizes, utility companies, businesses and non-profit organizations have offered solutions that seek in some way to transform their region's energy system. These approaches include all types of community education, financial tools, business networks, sustainable designations, incentive programs and more. This study aims to sort through those many solutions and to begin organizing them for analysis. Additionally, the study suggests applications for the use of these categories in determining the best approaches for energy reduction and community acceptance of sustainability principles. This presentation will provide an update on the progress of the study to be completed in Fall 2012.

## Heather N. Nathaniel

**3:40 pm, Room 312**

Chemical Engineering
2011 Thesis Fellow

Robert J. Wilkens, PhD, Thesis Advisor
Chemical and Materials Engineering Department

**Thesis Title**
***Effects of Pipe Orientation on Multi-phase Flow Patterns***

**Description**
Advances in avionics and weaponry are leading to higher thermal loads for next generation military aircraft beyond what traditional PAO coolant loops can handle. One proposed solution is to use a phase-change fluid to capture the additional heat. Due to fluctuating orientation and heat load, transient modeling is critical. As a first step, the focus of this work is to demonstrate the effects of orientation on flow patterns observed visually.

## Kathleen M. Rusbacky

**3:40 pm, Room 207**

PrePhysical Therapy
2011 Thesis Fellow

Lloyd Laubach, PhD, Thesis Advisor
Health and Sport Science Department

**Thesis Title**
***Metabolic Equivalents of College Male Athletes***

**Description**
This study investigates the concept of resting metabolism, as measured via open-circuit spirometry (oxygen consumption and carbon dioxide production), on a select group of male cross country runners with a Body Mass Index (BMI) in the normal range (18.5-24.9), and male football players with a BMI in the obese class I range (30.0-34.9). The accepted value of an MET was determined over 70 years ago, using one male subject aged 40 and weighing 70 kg. Recent studies have shown that this value may not be accurate, and that more research may be needed to determine a true MET value. The results of this study are expected to show a value for resting metabolism that is different than the accepted value of 3.5 ml/kg/min, and the results for each group are hypothesized to be different from one another, and are also expected to show a strong relationship between fat-free mass and resting metabolism.

## Katherine E. Seager

**3:40 pm, Room 222**

Accounting
2011 Thesis Fellow

Donna L. Street, PhD, Thesis Advisor
Accounting Department

**Thesis Title**
***The IASB Presentation of Items of Other Comprehensive Income: An Analysis of Comment Letters***

**Description**
The American Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) are working together to converge their accounting standards. The Boards have jointly undertaken the Financial Statement Presentation Project to standardize the presentation of financial statements, using constituent feedback to guide their efforts. This thesis analyzes how the Boards use the feedback from different parties to shape their standard setting in the area of Other Comprehensive Income. Comment letters were received by the Boards in response to the publication of proposed changes to standards. The thesis looks at these comment letters and analyzes the apparent impact of responses received on the final accepted amendments to the rules.

# 4:00 pm

## Chelsea M. Boch

**4:00 pm, Room 207**

Exercise Physiology
2011 Thesis Fellow

Lloyd Laubach, PhD, Thesis Advisor
Health and Sport Science Department

**Thesis Title**
***A Comparison of Metabolic Costs of Forward and Backward Treadmill Walking in Adult Females with a BMI of ≥30.0 and <40.0***

**Description**
The primary aim of this study is to assess the effects of forward and backward walking in terms of metabolic costs in adult females (age 30 to 60) with a BMI of ≥30 kg/m^2 and <40 kg/m^2. Metabolic cost is a measure of the energy used while performing a specific task. Researchers determined this energy use by observing the amounts of oxygen a subject consumed and carbon dioxide a subject produced while walking under different walking conditions. A subject's metabolic energy was measured while walking forward at 1.0 mph and 2.0 mph at 2.0% grade in addition to backward at 1.0 mph and 2.0 mph at 2.0% grade. The results are expected to show that more energy is required during backward walking in comparison to forward walking at the same speed and grade. These results will help researchers and clinicians understand the possible benefits and applications of backwards walking with regards to specific populations.

## Briana M. Hollis

**4:00 pm, Room 310**

Psychology and Criminal Justice
2011 Thesis Fellow

Anthony N. Talbott, Thesis Advisor
Political Science Department
Arthur Jipson, PhD, Thesis Advisor
Criminal Justice Program

**Thesis Title**
***Human Trafficking Unveiled:***
***Identifying Traffickers and Bringing Them to Justice***

**Description**
While many believed that slavery was abolished with the Emancipation Proclamation and the 13th Amendment of the Constitution, it is unfortunately alive and well. Human trafficking is the buying and selling of human beings for profit, or modern-day slavery. While there is an abundance of research done on human trafficking in general and human trafficking victims, there has been little research done on the people that actively promote and seek to continue this criminal enterprise: the traffickers. In this research psychological, sociological and criminological aspects such as age, location, socioeconomic status and criminal background of human traffickers will be examined in an attempt to create a criminological profile of traffickers that can be used by law enforcement to apprehend them.

## Jacob L. Rosen

**4:00 pm, Room 222**

Applied Mathematical Economics
2011 Thesis Fellow

Tony S. Caporale, PhD, Thesis Advisor
Economics and Finance Department

**Thesis Title**
***Minor League Baseball from 1998-2011:***
***Tradition, Success and the Recession***

**Description**
Minor league baseball is a tradition unlike any other in the United States. But how have dozens of new stadiums, franchise relocations, the recent recession and more affected attendance numbers? Does over-saturation occur in specific metropolitan areas or states? What does the "honeymoon effect" of new stadiums look like for minor league teams? And what is the ideal region to plant a burgeoning minor league franchise?

This thesis looks at three groups of case studies from nine different visits with dozens of interviews conducted by the author. Using economic testing, it then explores the connections behind what makes minor league baseball a roaring success in areas like Dayton, Ohio, but a faltering product in areas like Scranton, Pennsylvania. In combining the recent history of the sport with the fine-tuned marketing and branding of the 21st century, this thesis looks to see how minor league baseball keeps getting stronger.

## David J. Tacy

**4:00 pm, Room 312**

Biology and Psychology
2011 Thesis Fellow

Thomas Williams, PhD, Thesis Advisor
Biology Department

**Thesis Title**
***Visualizing Evolution through Differences in Gene Expression***

**Description**
Variations in when and where genes are expressed — that is, where they make a protein — are suspected to be a major source for organismal evolution. Identifying which genes have undergone expression changes is a necessary prerequisite to understand how expression patterns evolve. Pigmentation trait differences between Drosophila fruit fly species remain a leading model to identify gene expression changes underlying trait evolution. This is due to the fact that many of the genes required to make pigments and those that specify where pigments are produced have been identified in the genetic model organism species Drosophila melanogaster. Two important regulators of pigmentation are the tandem duplicate genes bab1 and bab2 that encode the Bab1 and Bab2 transcription factor proteins. These proteins block pigment development as they repress the expression of genes needed for the pigment metabolic pathway. For Drosophila melanogaster, the dorsal cuticle covering the posterior abdominal segments of males, but not females, is fully pigmented. This sexual dimorphism stems from the absence of Bab1 and Bab2 expression from these segments in males. Interestingly though, females from different geographic populations vary in the extent of pigmentation ranging from a near total absence to a more male-like pattern. I hypothesized that differences in Bab1 and Bab2 expression would exist between females with different extents of abdominal pigmentation. For my thesis I have employed in situ hybridization and immunohistochemical methods to test this hypothesis through observations of the mRNA and protein products respectively. My results raise new questions regarding how the expression patterns of duplicate genes evolve.

## Samantha L. Tsuleff

**4:00 pm, Room 331**

Religious Studies and Sociology
2011 Thesis Fellow

Shawn A. Cassiman, PhD, Thesis Advisor
Sociology, Anthropology and Social Work Department
Kelly Johnson, PhD, Thesis Advisor
Religious Studies Department

**Thesis Title**
***A Catholic Response to Refugee Resettlement:***
***A Case Study of Catholic Social Services in Dayton, Ohio***

**Description**
There are 15.2 million refugees worldwide and Catholic Social Services (CSS) in Dayton, Ohio, helps around 200 refugees per year attempting to meet their basic needs in a new society. This thesis explores the system of refugee resettlement in the United States through a case study and analysis of CSS in Dayton, Ohio. Through observational research, in combination with interviews and scholarly data, this thesis examines the process of refugee resettlement and analyzes the shortcomings and successes of the program. Research into the core tenets of Catholic Social Teaching (CST), including solidarity and preference towards the suffering, shows that there needs to be more done to provide the support called for by CST. This thesis examines who is obligated to meet the rights of the refugees, why there is not more support and what additional support could be given to help the refugees obtain a greater sense of human dignity and well-being.

# 4:20 pm

## Michele L. Baeder
**4:20 pm, Room 211**

PrePhysical Therapy

Kurt J. Jackson, PhD, Thesis Advisor
Health and Sport Science Department

**Thesis Title**

***The Feasibility and Effect of a Kickboxing Training Program on the Balance, Gait and Overall Quality of Life of Persons with Multiple Sclerosis: A Case Series***

**Description**

The objective of this case series is to determine the feasibility and effects of a 5-week kickboxing training program on three individuals with multiple sclerosis. Multiple sclerosis is an autoimmune disease which attacks the central nervous system, resulting in a variety of neural symptoms. Some of the most common deficits are found in balance and gait. Kickboxing training is a non-traditional, high-intensity exercise which focuses on balance, gait and mobility. Participants were involved a 5-week kickboxing training program taught by experienced instructors. They were tested through a variety of balance, gait and quality-of-life measures before and after the training period. Results suggest that there is improvement in the balance confidence of participants. However, no improvements are found in measures of balance, gait or quality of life. Using a greater number of participants with a wider range of disabilities is suggested for further research.

## Danielle E. Bare
**4:20 pm, Room 222**

Mechanical Engineering
2011 Thesis Fellow

Joaquin Barrios, PhD, Thesis Advisor
Health and Sport Science Department
Margaret Pinnell, PhD, Thesis Advisor
Mechanical and Aerospace Engineering Department

**Thesis Title**

***Varus Knee Alignment and Gait in Healthy College-Aged Females***

**Description**

Knee Osteoarthritis (OA) is a growing problem especially in the elderly population. There is no known cure for the condition and nearly half the population develops knee OA by age 85. Varus knee alignment has been found to be a strong predictor of medial knee OA. Gait abnormalities in individuals with medial knee OA appear to be partly related to varus malalignment, in addition to compensation for pain and dysfunction. Gait abnormalities related to varus malalignment should be apparent in healthy individuals with varus knees. A previous study examined the biomechanics of gait in healthy individuals with varus knee alignment in a predominantly male cohort. However, knee OA is more common in females. The goal of this study is to observe gait patterns in a female population of healthy, young individuals with varus knee alignment and then compare these gait patterns with the gait patterns of the previous male population.

## Margaret M. Edison
**4:20 pm, Room 331**

Adolescent to Young Adult Education
2011 Thesis Fellow

Beverly Tillman, PhD, Thesis Advisor
Teacher Education Department

**Thesis Title**

***Cultural Competence: A Personal Journey to Becoming a Culturally Relevant Educator***

**Description**

This research project examines the researcher's cultural experiences and subsequent reactions toward them during a four-month study abroad program in Ireland. Daily experiences were recorded via journaling and then compared to research-based attributes of culturally responsive educators. The researcher compared the self-analysis of the journals to research-based attributes of culturally-responsive teachers in an attempt to discover what qualities and skills the researcher needs to further develop and improve. From the comparison, an action plan for the researcher's professional development with regard to becoming culturally competent has emerged. This research project is significant because the researcher intends to be an urban teacher and therefore will be working with students of many cultures. Understanding what is required to be culturally competent will allow the researcher to successfully work with all students.

# 4:40 pm

## Danielle M. Bott

**4:40 pm, Room 310**

Adolescent to Young Adult Education and Mathematics
2011 Thesis Fellow

Shannon O. Driskell, PhD, Thesis Advisor
Mathematics Department

### Thesis Title

***Case Studies: The Experiences of Gifted Females in Mathematics***

### Description

This study seeks to discover what gifted female students feel and experience in both high school and college mathematics classes and whether these feelings and experiences have an effect on their choice of college major(s) or career field(s). A researcher-designed survey was used to prompt the participants to reflect on their experiences and feelings. Through a qualitative analysis of the data, few themes emerged; therefore, a question-by-question analysis of each participants' responses was completed. Results indicate that most of the participants had good experiences in high school and college, in general, but their responses varied greatly in how they viewed those experiences.

## Sheila M. Heaton

**4:40 pm, Room 331**

Middle Childhood Education
2011 Thesis Fellow
2011 Hull Fellow

James Biddle, PhD, Thesis Advisor
Teacher Education Department
Kerry C. Coovert, Thesis Advisor
Teacher Education Department

### Thesis Title

***Language: The Key to Creating a Culturally Charismatic Classroom***

### Description

The demographics in the United States are changing. Studies show that by the year 2020 at least half the school population will be composed of non-Caucasian cultural groups, and by the year 2040, at least forty percent of the school population will be speaking a language other than English as their first language. Educators of today need to be ready to incorporate a variety of cultures into the environment that is their classroom. A pivotal aspect of culture is language. Language is a reflection of personality, thought process, history and home. Educators who are truly passionate about creating culturally-rich, charismatic environments for learning need to begin considering how to incorporate linguistic differences into the classroom. Communication is an essential component of any relationship. To strengthen and enrich relationships in the classroom, educators must become well-versed in the languages of the cultures they encounter. This session will delineate a variety of strategies and approaches to incorporate diverse cultures and languages into the classroom for the benefit of all students.

## Leslie A. Sollmann

**4:40 pm, Room 222**

Mechanical Engineering
2011 Thesis Fellow

Aaron Altman, PhD, Thesis Advisor
Mechanical and Aerospace Engineering Department
Lance Jacobsen, PhD, Thesis Advisor
GoHypersonic, Inc.

### Thesis Title

***Bleed Hole Location, Sizing and Configuration for Use in Hypersonic Inlets***

### Description

Hypersonic air-breathing engines with speeds approximately 5 times the speed of sound have been explored for use with efficient long-range cruise missiles, global reconnaissance, and for space access for over 50 years. Government-funded hypersonic programs have recently seen success; however, much research remains before hypersonic air-breathing engines are commonplace. One of the problems limiting the robustness of hypersonic air-breathing engines involves unstarted inlets. Unstarts occur when too much air is forced into an engine. Many techniques have been implemented to address inlet starting, such as retractable doors, variable inlet geometries, and excess air removal through perforations. Although the aforementioned techniques are viable solutions, permanent perforations for mass extraction are arguably most beneficial due to ease in manufacturing and weight reduction. A technique for developing bleed perforations for excess air removal was analyzed. Experimental results were obtained for a specific bleed hole configuration and are discussed in comparison with computational results.

# advisors

| Advisor | Department |
|---|---|
| Altman, Aaron, PhD | Mechanical and Aerospace Engineering |
| Barrios, Joaquin, PhD | Health and Sport Science |
| Biddle, James, PhD | Teacher Education |
| Caporale, Tony S., PhD | Economics and Finance |
| Carter, Michael, PhD | History |
| Cassiman, Shawn A., PhD | Sociology, Antropology and Social Work |
| Ciric, Amy, PhD | Chemical and Materials Engineering |
| Comfort, Donald, PhD | Chemical and Materials Engineering |
| Coovert, Kerry | Teacher Education |
| Courte, Dale, PhD | Computer Science |
| Daniels, Malcolm, PhD | Electrical and Computer Engineering |
| Darrow, David W., PhD | History |
| Dasgupta, Simanti, PhD | Sociology, Antropology and Social Work |
| Dean, Robert, PhD | Davis Center for Portfolio Management |
| Dixon, Lee, PhD | Psychology |
| Driskell, Shannon O., PhD | Mathematics |
| Elsass, Michael, PhD | Chemical and Materials Engineering |
| Fleischmann, Ellen, PhD | History |
| Goodnight, Jackson, PhD | Psychology |
| Hallinan, Kevin P., PhD | Mechanical and Aerospace Engineering |
| Hong, Yiling, PhD | Biology |
| Jackson, Kurt J., PhD | Health and Sport Science |
| Jacobsen, Lance, PhD | GoHypersonic, Inc. |
| Jipson, Arthur, PhD | Criminal Justice |
| Johnson, Kelly, PhD | Religious Studies |
| Kanet, John J., PhD | Operations Management |
| Kango-Singh, Madhuri, PhD | Biology |
| Kirschman, Keri Brown, PhD | Psychology |
| Kunz, Benjamin R. | Psychology |
| Lafdi, Khalid, PhD | Chemical and Materials Engineering |
| Langhorne, Anna, PhD | Communication |
| Laubach, Lloyd, PhD | Health and Sport Science |
| Layman-Guadalupe, Melissa, PhD | Psychology |
| Lopper, Matthew, PhD | Chemistry |
| Majka, Theo, PhD | Sociology, Antropology and Social Work |
| Merithew, Caroline, PhD | History |
| Murray, Andrew P., PhD | Mechanical and Aerospace Engineering |
| Myszka, David H., PhD | Engineering Management and Systems |
| Nielsen, Mark G., PhD | Biology |
| Ordonez, Raul, PhD | Electrical and Computer Engineering |
| Pici, Joseph, MA | English |
| Pinnell, Margaret, PhD | Mechanical and Aerospace Engineering |
| Rapp, John, PhD | Economics and Finance |
| Santamarina, Juan C., PhD | International Studies |
| Slade, Andrew, PhD | English |
| Sparks, Randy, PhD | Management and Marketing |
| Steinmetz, Nicole, PhD | Biomedical Engineering, Case Western Reserve University |
| Street, Donna L., PhD | Accounting |
| Striesbich, Richard | Environmental Engineering, Research Institute |
| Swavey, Shawn M., PhD | Chemistry |
| Talbott, Anthony | Political Science |
| Taylor, Philip, PhD | Environmental Engineering, Research Institute |
| Tillman, Beverly, PhD | Teacher Education |
| Tsonis, Panagiotis, PhD | Biology |
| Wilkens, Robert J., PhD | Chemical and Materials Engineering |
| Williams, P. Kelly, PhD | Biology |
| Williams, Thomas | Biology |

# presenters

| Presenter | Room and Session time |
|---|---|
| Aldridge, Henry L. | Room 211, 2:00 pm |
| Baeder, Michele L. | Room 211, 4:20 pm |
| Bare, Danielle E. | Room 222, 4:20 pm |
| Boch, Chelsea M. | Room 207, 4:00 pm |
| Bott, Danielle M. | Room 310, 4:40 pm |
| Bradley, Brian T. | Room 310, 3:40 pm |
| Capka, Joseph J. | Room 222, 1:40 pm |
| Castell, Gregory J. | Room 222, 2:00 pm |
| Chan, Ming Yue | Room 312, 1:20 pm |
| Charbonneau, Lauren L. | Room 312, 1:40 pm |
| Cipolla-McCulloch, Caitlin B. | Room 312, 2:40 pm |
| Clark, Claudia E. | Room 310, 3:00 pm |
| Cummings, Lindsey E. | Room 331, 1:00 pm |
| Donnelly, Kevin M. | Room 211, 2:20 pm |
| Earl, Katherine A. | Room 310, 2:40 pm |
| Edison, Margaret M. | Room 331, 4:20 pm |
| Edwards, Sarah F. | Room 310, 1:40 pm |
| Enlow, Paul T. | Room 331, 3:40 pm |
| Ferguson, Adam J. | Room 211, 3:40 pm |
| Fioritto, Amanda L. | Room 331, 1:40 pm |
| Funke, Lawrence W. | Room 211, 3:00 pm |
| Garcia-Ocasio, Sariana L. | Room 331, 2:20 pm |
| Greider, Rebecca L. | Room 207, 1:20 pm |
| Guisfredi, Monica A. | Room 211, 1:40 pm |
| Hagenbuch, Matthew L. | Room 207, 2:20 pm |
| Hanes, Katelin E. | Room 331, 1:20 pm |
| Hapciu, Annea N. | Room 222, 1:00 pm |
| Heaton, Sheila M. | Room 331, 4:40 pm |
| Hollis, Briana M. | Room 310, 4:00 pm |
| Janosko, Laura A. | Room 312, 1:00 pm |
| Kaylor, Zachary M. | Room 222, 2:20 pm |
| Kelly, Andrew K. | Room 222, 3:00 pm |
| Knape, Glenna M. | Room 312, 2:20 pm |
| Kovaleski, Christopher J. | Room 331, 3:00 pm |
| McGinnis, John E. | Room 312, 3:00 pm |
| Nathaniel, Heather N. | Room 312, 3:40 pm |
| Pancher, Amy A. | Room 310, 2:00 pm |
| Recko, Stephanie A. | Room 222, 3:20 pm |
| Rosen, Jacob L. | Room 222, 4:00 pm |
| Rusbacky, Kathleen M. | Room 207, 3:40 pm |
| Ryan, Mary J. | Room 207, 3:00 pm |
| Schubert, Travis M. | Room 211, 3:20 pm |
| Scott, Anna J. | Room 310, 3:20 pm |
| Seager, Katherine E. | Room 222, 3:40 pm |
| Sollmann, Leslie A. | Room 222, 4:40 pm |
| Stucke, Christopher J. | Room 331, 3:20 pm |
| Sweigert, Patrick J. | Room 310, 2:20 pm |
| Tacy, David J. | Room 312, 4:00 pm |
| Taylor, Jordan E. | Room 312, 3:20 pm |
| Trapp, Halle S. | Room 207, 1:40 pm |
| Tsuleff, Samantha L. | Room 331, 4:00 pm |
| Untener, Mary A. | Room 207, 2:40 pm |
| Ward, Hayley E. | Room 312, 2:00 pm |
| Winn, Michael J. | Room 207, 2:00 pm |
| Young, Rebecca L. | Room 310, 1:20 pm |
| Zeszut, Ronald A. | Room 207, 3:20 pm |

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