3-11-2011

2011 Program: Honors Student Symposium

University of Dayton. University Honors Program

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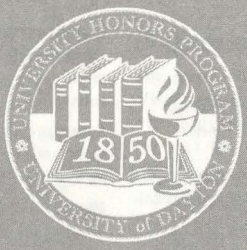
The thesis component of the Honors Program consists of a three-semester, six-credit-hour project that culminates in a significant research contribution, performance, or body of creative work.

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 a professional opportunity for the students to present their theses to the University community.

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 awardee for 2010-11 is Abagail M. Lawson.



The University of Dayton

University Honors Program

presents the

Honors Students Symposium 2011

March 11, 2011
1:00 to 5:00 pm
Kennedy Union

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Arts and Sciences

Humanities

Body as a Compass: A Cultural and Psychoanalytic Interpretation of Paule Marshall's Praisesong for the Widow *and* The Timeless Place, the Chosen People, *The*
Joanna M. Pfahler ..... Room 312, 2:20 pm

Case Studies: The Linguistic Impact of Short-Term Studies Abroad
Christopher J. Lemon ..... Room 312, 1:20 pm

Church and State: The Catholic Church and Abortion Legislation in the United States and Spain
Aubrey M. Hartnett ..... Room 311, 3:00 pm

Hero-Glyphics: How Postmodern Characteristics of Contemporary Graphic Novels Have Transformed Joseph Campbell's Archetypal Hero
Zachary S. Heck ..... Room 331, 2:40 pm

Liberty, Equality, Fraternity and Secularism: French Politics and the Ban of Face-Covering Islamic Veils
Maura E. LaMendola ..... Room 311, 3:20 pm

Once I Was Hollow
Brittany A. Cook ..... Room 312, 1:40 pm

Rethinking the Catholic Christian Response to Poverty Medicine and Access to Health Care in the U.S. through the Formation of Physicians
Karl W. Eckberg ..... Room 310, 1:00 pm

They Suffer Most: *An Examination of Literary Analysis and Creative Fiction*
Sonya Bilocerkowycz ..... Room 312, 2:00 pm

Performing and Visual Arts

Compositional Style Changes in Four Composers
Eunice O. Awonuga ..... Ballroom, 3:00 pm

Sciences

Coarser Pathwise-Connected Topologies of Metric Spaces
Joshua S. Cain ..... Room 211, 3:20 pm

Current Research on Quantum Correlations and Implications for Liquid-State NMR Quantum Computing
Nicholas D. Haynes ..... Room 211, 3:00 pm

Developmental Characterization of Ectopic Eye Formation Function of PAX-6 Gene in Drosophila Eye
Christopher A. Johns ..... Room 312, 3:00 pm

Effects of Shear Stress on Human Venous and Arterial Endothelial Cells in Culture, The
Ellen M. Vanderburgh ..... Room 207, 1:20 pm

Effect of Silver Nanoparticles on Mouse Embryonic Stem Cell Gene Expression
Megan R. Falter ..... Room 310, 2:20 pm

Effect of Silver Nanoparticles on the Bacteria and Plants Essential to Global Nitrogen Cycle, The
Brittany A. Demmitt ..... Room 211, 4:20 pm

Environmental Justice in a Typical American City: Geospatial Comparisons of Tree Canopy Cover and the Socio-Economic Criteria in Montgomery County, Ohio
Nolan M. Nicaise ..... Room 207, 2:00 pm

Expression Patterns of the Aquaglyceroporin HC-3 in Erythrocyte Cultures of Cope's Gray Tree Frog, Hyla Chrysoscelis
Matthew V. Puccetti ..... Room 207, 1:00 pm

Impact of Various Growth Parameters on Transport Properties of GaN-Based Heterostructures
Michelle R. Tomczyk ..... Room 331, 1:20 pm

Investigation of Defective Proventriculus (dve), a New Member of the Dorso-Ventral Patterning Pathway
Michaela A. Minichello ..... Room 211, 2:20 pm

Isolation and Transfection of Feline Gastrointestinal Tissue Used to Study the Efficacy of Probiotics, The
Teresa S. Finnegan ..... Room 211, 2:40 pm

Localization of Various Glycoproteins in the Canine Zona Pellucida
Eileen C. Kennedy ..... Room 207, 1:40 pm

Robotic Dancing: Exploring Agents with a Stratified Perceive-Decide-Act Cycle
James A. Benze ..... Room 331, 2:00 pm

Role of Galectin-3 in Melanization, The
Allison L. Chalupa ..... Room 211, 4:00 pm

Synthesis and Characterization of Polymer Electrolyte Material for High Temperature Fuel Cells
Kaitlin M. Fries ..... Room 207, 3:00 pm

Synthesis, Characterization, DNA Binding and Supercoiled DNA Photocleavage Studies of a Novel Ruthenium (II) Porphyrin
Dale F. Wilson ..... Room 310, 1:20 pm

Understanding How Mutations in the Tumor-Suppressor Gene, Scribble, Interact with JNK- and Hippo-Cell Signaling Pathways to Induce Metastatic Proliferation and Cancer Progression
Jane M. Neiheisel ..... Room 312, 3:20 pm

Unraveling the Cell Death Mechanism of Alzheimer's Disease
Jaison J. Nainaparampil ..... Room 312, 2:40 pm

Using Game Theory to Maximize Social Welfare
Yi Zhao ..... Room 211, 3:40 pm

Social Sciences

Advanced Spacial Audio Cuing for Large-Screen Displays
Courtney E. Castle ..... Room 331, 3:20 pm

Conditional Traits and Virtue
Matthew E. Graci ..... Room 311, 2:20 pm

Cost of Justice: The International Criminal Court and the Tension between Pursuing Peace and Obtaining Justice, The
Abagail M. Lawson ..... Room 310, 1:40 pm

Cultural Implications of Relationship Articles in Women's Magazines Online, The
Erin M. Phelps ..... Room 207, 4:40 pm

Divided: A Comparative Study on Ancient and Contemporary Walls
Zachary T. Sideras ..... Room 310, 2:00 pm

Evolving Standards of Decency: An Exploration of the Interplay of Developmental Psychology and the Eighth Amendment
James R. Saywell ..... Room 331, 4:40 pm

Focusing on My Appearance Is Exhausting: Self-Exposure and Self-Regulation Failure for Individuals with Low Body Esteem
Leah M. Schumacher ..... Room 310, 4:20 pm

Investigation of Small Ringe Carbamates and Theiocarbamates and Analysis of Moringa Oleifera Extract
Katherine M. Cobb ..... Room 207, 3:20 pm

Overconfidence in Administrative and Management Positions
Paul W. Thomas ..... Room 331, 3:00 pm

Prevalence and Nature of Undergraduate Stimulant Misuse
Abigail M. Webb ..... Room 331, 3:40 pm

Rejection and Interpersonal Attraction
Nicholas V. Pesola ..... Room 310, 4:00 pm

The Other Child: The Perceived Stress Level of Siblings of Individuals with Developmental Disabilities
Casey A. Aldrich ..... Room 311, 2:00 pm

Education and Allied Professions

Health and Sport Science

Dietary Differences in Spanish-Speaking Countries: a Review of International Fieldwork and Native Recipe Nutrient Analysis
Sarah E. Picklo ..... Room 331, 2:20 pm

Pediatric Traumatic Brain Injury: Best Practices for Return to School and Play
Alexandria C. Harris ..... Room 331, 1:00 pm

Using the Bruininks-Oseretsky Test of Motor Proficiency, Second Edition to Assess Children 6 to 10 Years in a School-Based Setting
Sara J. Mrowzinski ..... Room 311, 2:40 pm

Teacher Education

Differentiated Instruction in the Mixed-Ability Middle School Mathematics Classroom: A Study on the Four-Tier Format
Tierney A. Stinson ..... Room 312, 4:20 pm

Project-Based Learning in a High School Integrated Science Classroom: A Comparison to Direct Instruction
Carly R. Monfort ..... Room 310, 4:40 pm

Utilization and Effectiveness of School-Wide Positive Behavior Supports (PBS), The
Maura H. Shanahan ..... Room 331, 1:40 pm

Business Administration

Attitudes and Behavioral Intentions toward the Adoption of Mobile Marketing: An Analysis of Gen Y across American, French and Chinese Cultures
Catherine E. Glynn ..... Ballroom, 2:40 pm

Creating Alpha in Exchange-Traded Funds (ETFs): An Empirical Analysis of the Impact of Valuation Weighting and Rebalancing on Selected EFTs' Performance, 2009 to 2010
James A. Hankenhof ..... Ballroom, 1:20 pm

Lean Hospitals: An Examination of the Obstacles to Implementation
Elizabeth H. Marsh ..... Ballroom, 2:00 pm

Leveraging IT to Turn Energy-Intensive Processes into Green, Information-Intense Processes
Robert P. Plucis ..... Ballroom, 1:40 pm

Meals on Wheels Association of America: A Closer Look at Feeding Seniors
Emily R. Claricoates ..... Ballroom, 1:00 pm

Two Essays on Economic Growth
Abigayle B. Conner ..... Ballroom, 2:20 pm

Engineering

Allocation of Carbon throughout Growth Phases of Chlorella Vulgaris
Julia L. Faeth ..... Room 310, 3:20 pm

Characterization of the Microstructure and Properties of Several Carbon Nanotube Yarns
Brian P. McMasters ..... Room 211, 1:20 pm

Greenhouse Effect, The
Nichole L. Hanus ..... Room 207, 2:20 pm

Morphologic Examination of Isolated Vascular Smooth Muscle Cells Cultured Under Shear Stress Using a Novel Bioreactor System
Anna C. Henry ..... Room 211, 1:40 pm

Oyster Hemocyte Crystal Deposition for Development of Biocompatible Implant Coatings
Emily A. Untener ..... Room 211, 2:00 pm

Solutions to Municipal Waste: A Comparison and Contrast of Disposal Methodologies of the Vienna, Austria; Chisnau, Moldova; and Dayton, Ohio Municipalities
Daniel J. Prindle ..... Room 310, 3:00 pm

Supercapacitors Based on Carbon Nanotube Fuzzy Fabric Technology
Nathaniel J. Hogrebe ..... Room 211, 1:00 pm

Synthesis and Crystal Structure of Two Isomeric Benzotrithiophene Compounds Doped with TCNQ as Possible Organic Semiconductors
Joel E. Schmidt ..... Room 207, 4:20 pm

Use of Elastically-Based Mechanical Energy Storage in Motor Vehicles, The
Nicholas J. Direnzi ..... Room 207, 4:00 pm

1:00 pm

Emily R. Claricoates

1:00 pm, Ballroom

Accounting and Finance
2010 Thesis Fellow

Janet S. Greenlee, PhD, Thesis Advisor
Accounting Department

Thesis Title

Meals on Wheels Association of America: A Closer Look at Feeding Seniors

Description

My thesis focuses on Meals On Wheels Association of America and the funding and spending for the organization. It examines where the money comes from and how they use the funds they raise and compares different individual programs within the organization. A survey was completed by many programs, and the results were used to analyze statistically different aspects of MOWAA.

Karl W. Eckberg

1:00 pm, Room 310

Religious Studies and PreMedicine
2010 Thesis Fellow

Jana M. Bennett, PhD, Thesis Advisor
Religious Studies Department

Thesis Title

Rethinking the Catholic Christian Response to Poverty Medicine and Access to Health Care in the U.S. through the Formation of Physicians

Description

This thesis aims to analyze, through several qualitative interviews with doctors, the role of moral and spiritual formation in preparing physicians to serve the poor. This analysis comes at a time in which access to health care has been a hotly debated issue in the United States. Our health care system and the subsequent policies and politics behind it have constantly re-analyzed and readdressed the issue of how to ensure proper care for the poor. Yet the medical "safety net" for the poor continues to deteriorate, and statistics have shown that disparities continue to grow. A solution for solving the uninsured poor's access to health care is desperately needed. The Catholic Christian faith has reflected on how to address this issue; however, the comprehensive formation of physicians has not been given adequate consideration as a solution to this problem. By properly addressing the role of formation for physicians, our nation can better prepare physicians to serve the growing poor population in need of health care.

Alexandria C. Harris

1:00 pm, Room 331

PrePhysical Therapy
2010 Thesis Fellow

Susan C. Davies, EdD, Thesis Advisor
Counselor Education and Human Services Department

Thesis Title

Pediatric Traumatic Brain Injury: Best Practices for Return to School and Play

Description

A Traumatic Brain Injury (TBI) is an injury to the brain caused by an external force resulting in a disability or impairment that negatively affects a person. Incidents of pediatric TBIs have increased in recent years and there is a need for more research on indicators and

possible treatments. Returning to school and play post-TBI is a delicate process for a child who has sustained one. The objective of this thesis was to determine whether being asymptomatic is a necessary criterion for returning to school and play. This study involved a review of numerous studies and expert interviews. It concludes with a description of current criteria and guidelines for returning to school and sports following a brain injury.

Nathaniel J. Hogrebe

1:00 pm, Room 211

Chemical Engineering
2010 Thesis Fellow

Khalid Lafdi, PhD, Thesis Advisor
Multiscale Composites and Polymers, Research Institute

Thesis Title

Supercapacitors Based on Carbon Nanotube Fuzzy Fabric Technology

Description

Supercapacitors used in conjunction with batteries offer a solution to energy storage and delivery problems in systems where a high power output is required, such as in fully electric cars. Because the energy accumulated in capacitors is simply in the form of positive and negative charges on the electrode surface as opposed to the chemical energy utilized in batteries, the energy release is relatively rapid and results in a high power output. Supercapacitors have a more sustained output than traditional capacitors because they store much larger amounts of energy per unit volume of material by eliminating dielectric materials and vastly increasing the usable surface area. This project aims to enhance current supercapacitor technology by fabricating activated carbon on a substrate consisting of carbon nanotubes grown on a fiberglass fabric. This "fuzzy" surface of carbon nanotubes helps give rise to a more porous and consequently higher surface area material after activation, resulting in a flexible fabric with a high specific capacitance.

Matthew V. Puccetti

1:00 pm, Room 207

Biology and Chemistry
2010 Thesis Fellow

Carissa M. Krane, PhD, Thesis Advisor
Biology Department

Thesis Title

Expression Patterns of the Aquaglyceroporin HC-3 in Erythrocyte Cultures of Cope's Gray Tree Frog, Hyla Chrysoscelis

Description

The rapid movement of water across cell membranes is one of the most important physiological processes in several systems of all organisms. To accomplish this cells utilize protein pores known as aquaporins, a family of trans-membrane protein channels that regulate and control the movement of water across the membrane in response to concentration gradients. Cope's gray tree frog, Hyla chrysoscelis, is a freeze tolerant amphibian that tolerates up to 60% of its body water being converted to ice during the winter months. This organism utilizes a sub-family of aquaporins, known as aquaglyceroporins, channels that allow for the passage of small, uncharged organic molecules, to regulate intra- and extra-cellular concentration gradients during freezing and relegate ice crystal formation to the extracellular spaces. This study sought to determine how hyperosmotic gradients of different solutes affected the expression of HC-3, an aquaglyceroporin, both quantitatively and in terms of cellular localization in erythrocyte cultures of Hyla chrysoscelis.

1:20 pm

James A. Hankenhof

Finance and Accounting
2009 Cordell W. Hull Jr. International Fellow

1:20 pm, Ballroom

John E. Rapp, PhD, Thesis Advisor
Economics and Finance Department
Robert Dean, PhD, Thesis Advisor
Executive in Residence (DCPM)

Thesis Title

Creating Alpha in Exchange-Traded Funds (ETFs): An Empirical Analysis of the Impact of Valuation Weighting and Rebalancing on Selected ETFs Performance, 2009 to 2010

Description

Exchange Traded Funds (ETFs) have become investment vehicles of choice for investors seeking diversification within sectors, industry groups and as various investment styles (i.e., growth and value) in the market. There is now over a trillion dollars invested in ETFs.

The purpose of this study is to determine if the index weighting based on fundamentals provides superior performance to either equal weighting or market cap weighting for growth and value ETFs for the period 3/31/09 through 12/31/10. I also want to determine if periodic rebalancing adds to the performance of the ETFs. Finally, I want to reshape the ETFs to reflect more concentrated and undervalued portfolios, i.e., no more than 25 to 30 stocks. The critical assumptions are that undervalued stocks will do better than fairly to overvalued stocks in both falling and rising markets, and that a concentration of undervalued stocks will perform best.

Christopher J. Lemon

Foreign Language Education and Spanish
2010 Thesis Fellow

1:20 pm, Room 312

Isabel J. Espinoza, PhD, Thesis Advisor
Languages Department

Thesis Title

Case Studies: The Linguistic Impact of Short-Term Studies Abroad

Description

United States foreign language departments and students are trending toward short-term (less than eight weeks long) studies abroad, as 55% of university students who have studied abroad in a 2006 to 2007 survey did so in programs of eight or fewer weeks' duration, up from a mere 3 percent in a 1996 to 1997 survey (Donnelly-Smith, 2009). This study explores three university-level Spanish students' improvements in Spanish-language writing and speaking skills as a result of a four-week study abroad. Each student started the program at different levels of proficiency in Spanish, but each had taken at least one 300-level Spanish course. The four areas of focus are: (1) pronunciation of occlusive consonants (p, t, k, b, d and g); (2) use of direct and indirect object pronouns; (3) use of qualitative adjectives; and (4) complexity of speech. The results show relatively minor improvements, suggesting the need for longer study abroad programs.

Brian P. McMasters

1:20 pm, Room 211

Chemical Engineering
2010 Thesis Fellow

Charles E. Browning, PhD, Thesis Advisor
Chemical and Materials Engineering Department
David Anderson, PhD, Thesis Advisor
Multiscale Composites and Polymers, Research Institute

Thesis Title

Characterization of the Microstructure and Properties of Several Carbon Nanotube Yarns

Description

Carbon nanotubes are nanomaterials which have great potential to influence future materials and technology because of their high theoretical mechanical, thermal and electrical properties. In order to take advantage of these properties, however, it is necessary to scale up the nanotubes into workable sizes. One method of utilizing carbon nanotubes in this fashion is to create yarns composed entirely of carbon nanotubes, held together by the nanotubes' high attractive forces. In this thesis five such carbon nanotube yarns were studied, produced from three different manufacturing processes. These yarns were characterized using Raman spectroscopy and scanning electron microscopy. Both techniques shed light on the microstructure of the carbon nanotube yarn. The mechanical and electrical properties of these yarns were then measured in an attempt to find connections between the microstructure of a yarn and its physical properties.

Michelle R. Tomczyk

1:20 pm, Room 331

Physics
2010 Thesis Fellow

Said Elhamri, PhD, Thesis Advisor
Physics Department

Thesis Title

Impact of Various Growth Parameters on Transport Properties of GaN-Based Heterostructures

Description

The nitride family and its heterostructures are important to the future of semiconductor development. Interest in the nitride family is great due to its high temperature tolerance and short-wavelength applications. Though gallium nitride (GaN)-based devices are already available commercially, much more work is needed to fully exploit the full potential of GaN-based structures. A key area of focus is how the various growth parameters impact the performance of devices based on these materials. While there are a multitude of approaches that can be used to investigate the impact of variations in the growth, this project focuses on the impact of specific variations in the growth on three electronic transport parameters: resistivity, carrier density, and mobility. The Hall effect and resistivity, which are commonly employed techniques in semiconductor research, are the primary characterization methods used in this study.

Ellen M. Vanderburgh

1:20 pm, Room 207

Biology
2010 Thesis Fellow

Carissa J. Krane, PhD, Thesis Advisor
Biology Department

Thesis Title

The Effects of Shear Stress on Human Venous and Arterial Endothelial Cells in Culture

Description

Coronary artery bypass graft surgery (CABG) is a procedure done for patients suffering from coronary heart disease (CHD). The two most common grafts for CABG surgery are the human saphenous vein (HSV) and the internal mammary artery (IMA). The patency rate for the HSV is lower than the IMA after ten years due to cell proliferation and the blood vessel wall thickening, which eventually occludes blood flow. We hypothesize that the reason the HSV triggers cell proliferation is due to environmental differences in blood flow rates and shear stress conditions that occur in the venous versus arterial environments. The objective of this research was to develop and characterize an ex vivo flow system to be used to examine the effects of shear stress on vascular cells in culture.

Dale F. Wilson

1:20 pm, Room 310

PreMedicine
2010 Thesis Fellow

Shawn M. Swavey, PhD, Thesis Advisor
Chemistry Department

Thesis Title

Synthesis, Characterization, DNA Binding and Supercoiled DNA Photocleavage Studies of a Novel Ruthenium (II) Porphyrin

Description

Photodynamic therapy is a treatment modality for a number of medical conditions that is gaining increased attention. Photodynamic therapy makes use of light, oxygen and a chemical substance known as a photosensitizer to elicit cell death in tumor cells while limiting destruction of healthy tissue. Porphyrins are chemical compounds that show great promise in this field. The porphyrin being studied exhibited strong interactions with DNA, suggesting potential as a photosensitizer in photodynamic therapy.

1:40 pm

Brittany A. Cook

1:40 pm, Room 312

English and Fine Arts
2010 Thesis Fellow

Stephen W. Wilhoit, PhD, Thesis Advisor
English Department

Thesis Title

Once I Was Hollow

Description

My main goal for this thesis was to create an arena in which visual art and creative writing could be viewed together in the form of a book as a unified aesthetic encounter. To do this

I based a work of creative non-fiction around my experience of learning to read and how that led to an ability to write. I then coupled this written work with a series of prints, paintings, sketches and small compilations of found objects. During the coupling of visual art and creative writing, I paid careful attention to what connotation I intended to convey in each written sentence and then re-created that connotation using visual art. I worked within that vein for every page and now the entire book demonstrates hand-written sentences interacting with some form of visual art — both of which tell a story and offer a glimpse of what a unified aesthetic encounter can be.

Anna C. Henry

1:40 pm, Room 211

Chemical Engineering
2010 Thesis Fellow

Robert J. Wilkens, PhD, Thesis Advisor
Chemical and Materials Engineering Department
Carissa M. Krane, PhD, Thesis Advisor
Biology Department

Thesis Title

Morphologic Examination of Isolated Vascular Smooth Muscle Cells Cultured Under Shear Stress Using a Novel Bioreactor System

Description

When blood flows through vessels, it applies a shear stress to the cells that make up the vessel wall. The magnitude of the shear stress applied varies with location in the body as the blood pressure, velocity and vessel radius change. When veins are inserted into the arterial circulation in procedures like Coronary Artery Bypass Grafts, they are exposed to higher shear stresses in addition to other environmental changes. A bioreactor system was designed for culturing cells under flow conditions and controlled levels of shear stress to examine the effects of changes in flow conditions as a possible contributor to graft failure. These failures often originate in the smooth muscle layer, thus observations focused on changes in the morphology of arterial and venous smooth muscle cells under flow vs. static conditions.

Eileen C. Kennedy

1:40 pm, Room 207

Biology
2010 Thesis Fellow

Shirley J. Wright, PhD, Thesis Advisor
Biology Department

Thesis Title

Localization of Various Glycoproteins in the Canine Zona Pellucida

Description

Fertilization is a critical step in the life of every mammal. The zona pellucida (ZP), which is a glycoprotein extracellular matrix that surrounds mammalian oocytes, is a critical component of this process since sperm bind and penetrate the ZP to fertilize the oocyte. Some cases of human infertility have been linked to the ZP. Thus, understanding ZP structure and function is critical to combat infertility. The mouse has been the main research model for fertilization studies; however, its ZP protein composition differs from that of humans. Therefore, it is important to increase our knowledge of the ZP of other mammals to identify a better ZP model. The goal of this project was to localize ZP proteins in canine oocytes to reveal ZP structure in the canine.

Abagail M. Lawson

1:40 pm, Room 310

International Studies and Political Science
2010 Palermo Founders Fund Fellow and 2010 Thesis Fellow

Margaret P. Karns, PhD, Thesis Advisor
Political Science Department

Thesis Title

The Cost of Justice: The International Criminal Court and the Tension between Pursuing Peace and Obtaining Justice

Description

The establishment of the International Criminal Court (ICC) is considered a major milestone in international criminal justice. Since its creation, the ICC has become involved in situations of ongoing conflict or fragile peace, attempting to end impunity for the most heinous crimes under international law. Oftentimes the people responsible for committing atrocities are key players in peace negotiations, and therefore tensions exist between obtaining justice for these crimes and simultaneous attempts to end the conflict in which the crimes were committed. This is seen in two specific cases of the Court — against rebel leader Joseph Kony in Northern Uganda, and the case against President Omar al-Bashir of Sudan. In my thesis I analyze how the ICC's work has influenced the conflicts and prospects for peace in Sudan and Northern Uganda and vice versa. In doing so, I examine the concepts of peace and justice and how their various meanings dictate the work of the Court, the nature of conflict resolution processes, and therefore what the tension between the two concepts really means.

Robert P. Plucis

1:40 pm, Ballroom

Management Information Systems
2009 Thesis Fellow

Wm. David Salisbury, PhD, Thesis Advisor
MIS, OM and Decision Sciences Department

Thesis Title

Leveraging IT to Turn Energy-Intensive Processes into Green, Information-Intense Processes

Description

This thesis looks at the way information technology can turn business processes that require lots of energy and effort into simpler and easier processes that in turn create a wealth of data. Along with this, I am investigating the ways in which using information technology can make these processes "greener" and reduce the carbon footprint of companies. The utilities industry has been used as a case study.

Maura H. Shanahan

1:40 pm, Room 331

Intervention Specialist
2010 Thesis Fellow

Stephen B. Richards, EdD, Thesis Advisor
Teacher Education Department

Thesis Title

The Utilization and Effectiveness of School-Wide Positive Behavior Supports (PBS)

Description

Positive Behavior Support (PBS) is a range of individualized strategies focused on efficiently and effectively managing behaviors on a school-wide basis, especially

when used with students with special needs. These strategies are set and practiced over a period of time to reduce problem behaviors and improve behavioral success.

The purpose of this survey is to determine if and how positive behavioral supports are implemented in elementary and middle schools as a system of classroom management, as well as how effectively or ineffectively surveyed school-based professionals believe these systems are applied. Schools in both Dayton and Chicago will be surveyed to determine if there are differences between states.

2:00 pm

Casey A. Aldrich

2:00 pm, Room 311

Psychology
2010 Thesis Fellow

Carolyn Roecker-Phelps, PhD, Thesis Advisor
Psychology Department

Thesis Title

The Other Child: The Perceived Stress Level of Siblings of Individuals with Developmental Disabilities

Description

This study will examine what impact having a sibling with a developmental disability has on an individual's perceived personal and family stress level. Online questionnaires designed to investigate sibling and parental stress levels resulting from the disability will be used. Expectations regarding future roles as caregivers will also be investigated.

James A. Benze

2:00 pm, Room 331

Computer Science and Mathematics
2009 Cordell W. Hull Jr. International Fellow and 2010 Thesis Fellow

Jennifer Seitzer, PhD, Thesis Advisor
Computer Science Department

Thesis Title

Robotic Dancing: Exploring Agents with a Stratified Perceive-Decide-Act Cycle

Description

Improvisation is the practice of choosing a behavior based on the immediate environment in real time. This project develops intelligent agents that are able to improvise and demonstrate this ability through the medium of swing dancing and other activities requiring a follow-and-lead. Often, when one sees an intelligent agent (such as a robot) dancing, the dance is choreographed, which means the robot is following a series of instructions that are pre-programmed before the dance even begins. To have an agent improvise a dance is to have it start the dance with no preconceived plan, and then to construct a series of moves spontaneously, in the moment.

Several forms of intelligent agents have been investigated. In particular, fully virtual agents, created through a graphics package called Alice as well as physical agents in the form of small robots, have been studied and implemented.

Sonya Bilocerkowycz

English

2:00 pm, Room 312

Stephen W. Wilhoit, PhD, Thesis Advisor
English Department

Thesis Title

They Suffer Most: *An Examination of Literary Analysis and Creative Fiction*

Description

This original work of fiction explores themes of religious belief, disbelief and disease through two characters, a father and his daughter. With a twofold setting of modern-day Ukraine and America's Interstate 90 circa 1980, *They Suffer Most* experiments with subtle allusion and figurative language, while employing physical ailment as a central motif. A hybrid project, this thesis also provides comparative analysis of fiction by Flannery O'Connor and Graham Greene, tracing the thematic patterns that inform *They Suffer Most*.

Elizabeth H. Marsh

Accounting and Finance

2:00 pm, Ballroom

Joseph Castellano, PhD, Thesis Advisor
Accounting Department

Thesis Title

Lean Hospitals: An Examination of the Obstacles to Implementation

Description

While many are content to wait for the government to reform the health care system and reduce costs, some hospitals have already begun to address the cost issue and reduce medical errors through "Lean management." The term "Lean management" describes a technique that can be applied to any organization ("Lean hospitals" and "Lean manufacturing" are examples) and signifies a commitment to improving processes and reducing waste. Hospitals that have implemented Lean have benefited from millions of dollars in cost savings. Why then have more hospitals not "gone Lean"? This thesis seeks to answer that question by investigating the different obstacles to the implementation of Lean in hospitals. These obstacles include: the nature of hospital hierarchies and leadership styles, employee reticence, the structure of government reimbursement plans, and a lack of understanding among hospital administrators of what being Lean truly means.

Nolan M. Nicaise

Biology
2010 Cordell W. Hull Jr. International Fellow and 2010 Thesis Fellow

2:00 pm, Room 207

Ryan W. McEwan, PhD, Thesis Advisor
Biology Department

Thesis Title

Environmental Justice in a Typical American City: Geospatial Comparisons of Tree Canopy Cover and the Socio-Economic Criteria in Montgomery County, Ohio

Description

The Constitution of the United States directs the government to promote justice and the general welfare. However, in many areas marginalized populations are subjected to inferior environmental conditions. Because the environment provides important human services, inferior environmental conditions may lead to an inferior quality of life. Is such environmental injustice present in Montgomery County, Ohio? This study explores the geographic connections between tree canopy and several social/economic evaluators.

Zachary T. Sideras

2:00 pm, Room 310

International Studies and History
2009 and 2010 Cordell W. Hull Jr. International Fellow and 2010 Thesis Fellow

Margaret P. Karns, PhD, Thesis Advisor
Political Science Department

Thesis Title

Divided: A Comparative Study on Ancient and Contemporary Walls

Description

Since the end of the Cold War, walls have been built throughout the world by governments to end a long list of problems, such as drug trafficking, illegal immigration, terrorism and ethno-religious conflict. However, in both historical and contemporary contexts, walls have largely failed as long-term policy solutions. This presentation looks at the historical and contemporary use of walls built to divide societies. Utilizing Hadrian's Wall, the Berlin Wall, the Peace Lines in Northern Ireland and the Israeli Separation Barrier as case studies, this thesis explores the reasons why physical barriers are constructed between populations as means to solve conflict. Through analyzing the functions of walls and how they evolve over time, it is evident that walls have social, political and economic impacts on the divided society that tend to exacerbate the underlying grievances.

Emily A. Untener

2:00 pm, Room 211

Chemical Engineering
2010 Thesis Fellow

Karolyn M. Hansen, PhD, Thesis Advisor
Biology Department

Thesis Title

Oyster Hemocyte Crystal Deposition for Development of Biocompatible Implant Coatings

Description

The Eastern oyster, Crassostrea virginica, produces calcium carbonate shells and is able to regrow the edge of the shell if notched or damaged. One proposed mechanism of repair involves calcium crystal-containing oyster blood cells (hemocytes) that migrate to the site of injury and provide resources for shell repair. Oyster shells are a composite organic matrix/mineral ceramic material that has high resistance to fracture, increased flexural strength, is non-immunogenic, and is produced under ambient conditions. The use of oyster-derived material for biomedical implant coatings could provide a better implant tissue interface and reduce the incidence of implant failure at that interface. In this study I examined the role of oyster hemocytes in shell wound repair, determined the biocompatibility of hemocytes with biomedical implant materials (titanium, stainless steel), and characterized the calcium mineral in hemocytes.

2:20 pm

Abigayle B. Conner

Economics and Finance
2010 Thesis Fellow

2:20 pm, Ballroom
Marc Poitras, PhD, Thesis Advisor
Economics and Finance Department

Thesis Title
Two Essays on Economic Growth

Description
For my Honors Thesis Project in Economics I am looking at determinants of economic growth in two contexts: within a cross-section of developing countries and of U.S. states. In my discussion of developing countries, I objectively define countries that have experienced economic "turn-arounds" and identify factors that appear to have contributed to those turn-arounds. This includes considering the impacts of democracy and diversity on economic growth as well as examining the implications of the presence of natural resources within a country. With regards to the U.S. states, I consider the effects of human capital, which I characterize in terms of levels of education. I also include a discussion of social capital, or the amount of trust that exists between individuals in a society.

Megan R. Falter

PreMedicine and Psychology
2010 Thesis Fellow

2:20 pm, Room 211
Yiling Hong, PhD, Thesis Advisor
Biology Department

Thesis Title
Effect of Silver Nanoparticles on Mouse Embryonic Stem Cell Gene Expression

Description
Nanotechnology has numerous potential or commercial and biomedical applications. Their effects on stem cell gene expression are still largely unknown. My research consisted of treating mouse embryonic stems cells with varying concentrations of silver nanoparticles. Through the microscopy observation, the results indicate that nanoparticles induce stem cell apoptosis. Furthermore, western blotting analysis results indicate that silver nanoparticles have an effect on stem cell gene expression. The research has implications in consumer safety as silver nanoparticles are being used in an increasing number of commercial products.

Matthew E. Graci

Psychology and Philosophy

2:20 pm, Room 311
Peggy J. DesAutels, PhD, Thesis Advisor
Philosophy Department
John J. Bauer, PhD, Thesis Advisor
Psychology Department

Thesis Title
Conditional Traits and Virtue

Description
It appears as though people are not the best judgers of character, including ethical theorists. Observers can come to wrong conclusions because people do not act in such a robust, consistent and universal way as society tends to believe. Thus, my thesis is concerned with how a person comes to act in a situation. If an observer judges the actor

wrongly, then he prescribes an inadequate ethical system. Effective systems need a more mature and comprehensive understanding of the person in the situation. Such a system involves the acknowledgement of the power of systems and situational forces. The cultivation of virtue lies in the person perceiving the world in a more morally complex manner. The new ideological outlook the mature agent must have includes an awareness of one's conditional expression of inner qualities (based on perceived situational factors) and the knowledge to utilize non-moral factors to become a more morally potent person.

Nichole L. Hanus

2:20 pm, Room 207

Mechanical Engineering
2010 Thesis Fellow

Kevin P. Hallinan, PhD, Thesis Advisor
Mechanical and Aerospace Engineering Department
Laurie L. Quill, Thesis Advisor
Sensor Systems, Research Institute

Thesis Title

The Greenhouse Effect

Description

The aim of the Greenhouse Effect project is to reduce energy use in the University of Dayton (UD) student neighborhood by 5% by the end of spring semester 2011. The project is a collaboration of students, faculty and Facilities Management that targets the UD-owned neighborhood homes. Energy grade cards that track electricity and natural gas usage and cost engage students in this project and make them aware of their energy use each month. These grade cards include details about current energy use, carbon dioxide emissions, energy savings when compared to previous residents, and where that house's savings ranks in comparison to other houses for that month. In addition, a rebate program driven by energy savings will incentivize reduction in each home. The idea is that coupling the energy tracking with an incentive program promotes lifelong energy-saving behavior in students applicable anywhere, not just on campus.

Michaela A. Minichello

2:20 pm, Room 310

Biology
2010 Thesis Fellow

Amit Singh, PhD, Thesis Advisor
Biology Department

Thesis Title

Investigation of Defective Proventriculus (dve), a New Member of the Dorso-Ventral Patterning Pathway

Description

Axial patterning is crucial to the formation of organs in many organisms. In Drosophila dorso-ventral (DV) patterning is the earliest patterning event that occurs in the eye. Retinal determination (RD) genes are required for the specification and differentiation of the Drosophila eye field. Defective proventriculus (dve) is a new member of the axial (DV) patterning gene cascade in the eye. In order to gain a better understanding of the underpinnings of eye development, the interactions between dve and retinal determination genes were investigated. Through gain of function experiments we have found that when dve has increased expression, the retinal determination genes have a decrease in expression. When retinal determination genes were expressed in the dve expression domain, we see an increase in the dorsal margin of the eye and ectopic eye formation. These results lead us to suggest that dve is at the top of the hierarchy of eye formation in drosophila.

Joanna M. Pfahler

English

2010 Thesis Fellow

2:20 pm, Room 312

Sheila Hassell Hughes, PhD, Thesis Advisor

English Department

Thesis Title

***The Body as a Compass: A Cultural and Psychoanalytic Interpretation of Paule Marshall's* Praisesong for the Widow *and* The Chosen Place, the Timeless People**

Description

This study challenges certain dualities concerning race and gender by examining Paule Marshall's representations of the Black woman's body as a site for cultural resistance and identity. Through these representations, it combats sociological hierarchies, such as man over woman, white over black, and mind over body. It analyzes Marshall's portrayals of dance and geographic location as avenues for embracing African roots. Throughout the novels the characters use their bodies as compasses, leading them to embrace an African identity they once repressed. Marshall's texts, *Praisesong for the Widow* and *The Chosen Place, the Timeless People*, address the protagonists' mental, spiritual and physical connection to an African past. Linking the novels to sources of psychoanalysis, Black feminist theories and literary criticism, I address how African American women may repress aspects of their African heritage because of pressure to conform to middle-class, white standards in the United States.

Sarah E. Picklo

Nutrition and Spanish

2010 Cordell W. Hull Jr. International Fellow

2:20 pm, Room 331

Patricia E. Dolan, RD, LD, Thesis Advisor

Health and Sport Science Department

Thesis Title

Dietary Differences in Spanish-Speaking Countries: A Review of International Fieldwork and Native Recipe Nutrient Analysis

Description

This project compares the native diets of four regionally-diverse, Spanish-speaking countries: Ecuador, Mexico, Puerto Rico and Spain. After international observation in each country, native recipes were translated and categorized for nutritional analysis. The studied macronutrients and micronutrients are: Calories (kCal), Carbohydrate (g), Protein (g), Total Fat (g), Saturated Fat (g), Fiber (g), Cholesterol (mg), Calcium (mg), Sodium (mg) and Vitamin C (mg). Significant differences in Calories (kCal), Total Fat (g), Saturated Fat (g) and Sodium (mg) were found between more commonly researched countries (Mexico and Puerto Rico) and less commonly researched countries (Ecuador and Spain). Because the excess consumption of these nutrients is associated with cardiovascular disease, this project recognizes regional dietary differences as significant obstacles in the nutritional counseling of the Spanish speaking population in the United States.

2:40 pm

Teresa S. Finnegan

Biology and Spanish
2009 Cordell W. Hull International Fellow and 2010 Thesis Fellow

2:40 pm, Room 211
Robert J. Kearns, PhD, Thesis Advisor
Biology Department

Thesis Title

The Isolation and Transfection of Feline Gastrointestinal Tissue Used to Study the Efficacy of Probiotics

Description

The primary aims of this study were to isolate and characterize portions of the feline ileum, jejunum and duodenum, and then perform adherence assays to determine the effects of various strains of beneficial bacteria on intestinal function. The overall goal was to develop an in vitro model of the feline gastro-intestinal tract so that the mechanisms of infectious disease could be better understood. By doing so, various strains of probiotics may be added to companion pet food to prevent such infection from taking place.

Catherine E. Glynn

Marketing and International Business
2010 Thesis Fellow

2:40 pm, Ballroom
Rebecca M. J. Wells, PhD, Thesis Advisor
Management and Marketing Department
Terence Lau, JD, Thesis Advisor
Management and Marketing, and
International Business Departments

Thesis Title

Attitudes and Behavioral Intentions toward the Adoption of Mobile Marketing: An Analysis of Gen Y across American, French and Chinese Cultures

Description

As mobile marketing becomes an increasingly significant channel for marketing organizations, it is imperative to understand the attitudes and behavioral intentions toward it. According to Forrester Research, 52 percent of companies say that their top priority for mobile marketing strategy is to increase customer engagement. This is not a surprise, considering that almost 50 million people in the United States own a smartphone. As an expansion on a past study, this research centers on Generation Y (Gen Y) students, includes additional countries, and adds the variables of perception and adoption. This paper analyzes the differences in attitudes and behavioral intentions of Gen Y in three cultures toward the adoption of mobile marketing. By understanding these differences, marketing organizations can better understand how to target the segments that are most likely to adopt mobile marketing as a method of marketing communication.

Zachary S. Heck

English and Philosophy

2:40 pm, Room 331

James M. Boehnlein, PhD, Thesis Advisor
English Department

Thesis Title

Hero-Glyphics: How Postmodern Characteristics of Contemporary Graphic Novels Have Transformed Joseph Campbell's Archetypal Hero

Description

This thesis will explore how graphic novels — in particular those which chronicle the adventures of a superhero — have effectively transformed Joseph Campbell's conception of the archetypal hero. By depicting images and scenes of anarchy and subversion of popular culture, graphic novels have successfully challenged the mainstream with stories of individuals motivated to change society by taking the law into their own hands. Through an analysis of Neil Gaiman's *Sandman*, Alan Moore's *Watchmen*, Chris Claremont's *God Loves, Man Kills*, and Frank Miller's *Batman: Year One*, one can find the many different approaches that graphic novelists subvert popular culture through themes of deconstruction, reflexivity, chance, anarchy and most of all, existentialism. Ultimately, this work concludes that the super-hero genre of graphic novels has successfully capitalized on features of post-modernity and effectively added themes of subversion and utopian conquest to Campbell's mythic hero.

Sara J. Mrowzinski

PrePhysical Therapy
2010 Thesis Fellow

2:40 pm, Room 311

Betsy K. Donohoe-Fillmore, PhD, Thesis Advisor
Health and Sport Science Department
Paul M. Vanderburgh, PhD, Thesis Advisor
Graduate, Professional and Continuing Education

Thesis Title

Using the* Bruininks-Oseretsky Test of Motor Proficiency*, Second Edition to Assess Children 6 to 10 Years in a School-Based Setting

Description

The purpose of this study was to determine if a portion of the test items in the *Bruininks-Oseretsky Test of Motor Proficiency*, second edition (BOT-2, Bruininks, 2005) would be able to purport a reliable subtest score. The subtests used were chosen to assess core strength, postural control, and fine motor precision and integration. The results showed that only about 3 of the items per subtest (out of the 5 to 9 total items depending on the subtest) predicted greater than 80 percent of the overall subtest score. This information will help direct testing procedures for school-based occupational and physical therapists in order to save time and money when testing a large group of students with high accuracy for the BOT-2. This screening tool may be beneficial in identifying children in need of additional guidance or instruction.

Jaison J. Nainaparampil
PreMedicine
2010 Thesis Fellow

2:40 pm, Room 312
Amit Singh, PhD, Thesis Advisor
Biology Department

Thesis Title

Unraveling the Cell Death Mechanism of Alzheimer's Disease

Description

Alzheimer's Disease (AD), the most common cause of dementia, agonizes citizens across the nation. Commonly seen in the elderly population, AD challenges patients with tasks that we take for granted: remembering, reasoning, learning and imagining. The destruction of these everyday abilities stems from the destruction of brain cells. Trying to understand exactly how these cells die, researchers ask questions such as: "What proteins are involved?" and "How do the proteins communicate to eventually cause neurodegeneration?". This particular study utilizes the Drosophila melanogaster — the common fruit fly — to answer these questions. It incorporates a gene known to create amyloid plaques as well as genes from the caspase-dependent and caspase-independent cell death pathways. Amyloid plaques are hypothesized to induce AD symptoms, and, with their over expression in the fruit fly eye, we are able to test and examine several components of the cell death pathways.

3:00 pm

Eunice O. Awonuga

Music Performance

3:00 pm, Ballroom

P. Eric Street, DM, Thesis Advisor
Music Department

Thesis Title

Compositional Style Changes in Four Composers

Description

This research was on the compositional style of four composers — Bach, Mozart, Beethoven and Chopin. The study was done with a concentration on specific piano compositions by these composers. The contributions of the composers to the music period they represent will be considered with observations and comments from pianists.

Kaitlin M. Fries

Chemistry and Biology

3:00 pm, Room 207

Vladimir A. Benin, PhD, Thesis Advisor
Chemistry Department

Thesis Title

Synthesis and Characterization of Polymer Electrolyte Material for High Temperature Fuel Cells

Description

The 2-phospho poly benzobis imidazole (PPBI) polymer was successfully synthesized by direct polymerization, using the monomer 2-phosphonoterephthalic acid and 3,3-diaminobenzidine tetrahydrochloride. Techniques employed to confirm the chemical structure of both the monomer and polymer included melting point and nuclear magnetic resonance (NMR). The thermal properties of the polymer were characterized by Thermogravimetric analysis (TGA). In the future, this membrane has the potential to be used as the PEM material for air force fuel cell applications.

Aubrey M. Hartnett

International Studies and Spanish

3:00 pm, Room 311

Michael S. Carter, PhD, Thesis Advisor
History Department
Nieves Ortega Pérez, PhD
Political Science Department, la Universidad de Granada

Thesis Title

Church and State: The Catholic Church and Abortion Legislation in the United States and Spain

Description

With a focus on Massachusetts and Andalucia, the relationship between the Catholic Church and government is analyzed in how they respond to one another. Since both the United States and Spain have very recently pushed and/or passed legislation regarding abortion, the discussion is still developing. Given different government structures and historic experiences, the way the discussion has progressed has been different in Spain and the United States, and so these differences, too, are analyzed.

Nicholas D. Haynes

3:00 pm, Room 211

Physics and Philosophy
2010 Thesis Fellow

Leno M. Pedrotti, PhD, Thesis Advisor
Physics Department

Thesis Title

Current Research on Quantum Correlations and Implications for Liquid-State NMR Quantum Computing

Description

Nuclear magnetic resonance (NMR) spectroscopy has been used extensively in recent years to test the basic principles of quantum computing (QC). There has been disagreement, however, about whether NMR QC truly exhibits quantum effects or if these effects are just being simulated. The effects of quantum correlations — those that cannot be reduced to classical laws — on NMR QC were investigated in an attempt to answer this question. Further research potentially offers the promise of explaining why quantum computers seemingly can solve some problems faster than classical computers.

Christopher A. Johns

3:00 pm, Room 312

PreMedicine
2010 Thesis Fellow

Amit Singh, PhD, Thesis Advisor
Biology Department

Thesis Title

Developmental Characterization of Ectopic Eye Formation Function of PAX-6 Gene in Drosophila Eye

Description

Drosophila Eyeless gene (ey) is considered the master regulator of eye. Increasing levels of ey gene expression leads to the production of ectopic eyes on the thorax, wings, or legs. Ey, required for eye field determination, needs to be degraded when differentiation begins in the eye. However, the exact mechanism involved in this ey protein degradation has not yet been determined. We hypothesize that the ey gene must be dephosphorylated prior to degradation to allow for differentiation to take place. Here we test this hypothesis using a gain-of-function approach where we compare ectopic eye formation capacity of a full-length ey protein to various truncated versions of ey. Our data suggests that C-terminal domain harboring four putative phosphorylation sites is crucial for ectopic eye formation function of ey. Each phosphorylation site has been tested to understand specific involvement in the mechanism responsible for degradation of ey protein prior to eye differentiation.

Daniel J. Prindle

Mechanical Engineering
2010 Cordell W. Hull Jr. International Fellow

3:00 pm, Room 310
Sukhjinder S. Sidhu, PhD, Thesis Advisor
Energy and Environmental Engineering, Research Institute

Thesis Title

Solutions to Municipal Waste: A Comparison and Contrast of Disposal Methodologies of the Vienna, Austria; Chisnau, Moldova; and Dayton, Ohio, Municipalities

Description

The goal of this research is to compare the Montgomery County Solid Waste District (MCSWD) to two other cities' waste management systems in Vienna, Austria, and Chisnau, Moldova, to see how the MCSWD performs in regards to reclaiming energy from waste and reducing environmental damage. This performance will be directly related to the methodologies currently in place for waste collection and disposal, as well as the efficiencies of currently operating disposal systems, such as the use of land-filling or incineration, methane-capturing systems, or post-incineration flue-gas treatment systems.

Vienna and Chisnau were chosen as the cities for comparison for their apparent contrast in geography, city size and economic health. By comparing cities with extreme differences in population, geography and economic situation, solutions for healthy waste management practices in these areas may be much different and perhaps very novel for possible application in the MCSWD.

Paul W. Thomas

Psychology and Economics

3:00 pm, Room 331
Susan T. Davis, PhD, Thesis Advisor
Psychology Department

Thesis Title

Overconfidence in Administrative and Management Positions

Description

The present study investigates the connection between experience in a management position and overconfidence. Although counter-intuitive, it predicts that overconfidence increases as experience increases. While those with more experience should be better able to more accurately assess their skills and decisions (i.e., be more calibrated), such experience could have the opposite effect and instill a sense of invulnerability (i.e., overconfidence). Thus, based on previous research using participants from other professions (e.g., doctor, lawyer, engineer, psychologist) that found that people are overconfident in assessing their expertise in a specific domain, our prediction is that overconfidence tends to increase as years of experience in a management role increases and as an individual's sense of invulnerability increases.

3:20 pm

Courtney E. Castle

Psychology and Mathematics

3:20 pm, Room 331

Susan T. Davis, PhD, Thesis Advisor
Psychology Department
Victor S. Finomore Jr., PhD
Air Force Research Laboratory

Thesis Title

Advanced Spatial Audio Cuing for Large-Screen Displays

Description

In military command and control operations, operators often find themselves monitoring a large screen display containing information about the location and status of vehicles in the field. This task is demanding, as the operators are required to constantly scan the display for the appearance, disappearance or change in the physical presence of the icons. Not surprisingly, they are often susceptible to a cognitive phenomenon called change blindness, in which a change in the visual scene goes undetected due to some sort of distraction in attention. Cuing is one method that may be used to alleviate their workload, thus mitigating the effects of change blindness. Specifically, a spatial auditory cue effectively alerts the operator to the occurrence of a change while simultaneously orienting them to the relative location of the event on screen. A cue provides a critical advantage in areas of the screen that are frequently neglected or under-scanned.

Katherine M. Cobb

PreMedicine and Biochemistry
2010 Thesis Fellow

3:20 pm, Room 207

Vladimir A. Benin, PhD, Thesis Advisor
Chemistry Department

Thesis Title

Investigation of Small Ring Carbamates and Thiocarbamates and Analysis of Moringa Oleifera Extract

Description

The Moringa oleifera tree is an entirely edible plant shown to have many nutritional and medicinal benefits native to India and East African nations. A deeper understanding of the nature of this so-called "miracle tree" and synthesis of similar compounds has great potential for improving health in impoverished nations, and its chemical composition and uses are worth exploring further. The first part of this project involves an exploration of routes towards the synthesis of analogs of a suggested structure of an antibiotic compound found in extracts of Moringa oleifera: methyl-1,3-oxazetidine-2-thione and its oxygen analog 3-methyl-1,3-oxazetidine-2-one. Synthetic techniques have been moderately successful in yielding the desired product. The second part of the project involves further analysis of Moringa root extracts through soxlet and liquid-solid extraction. NMR spectrobioscopy was used to evaluate the progress in synthetic reactions and in the separation of individual components of the root extracts.

Julia L. Faeth

3:20 pm, Room 310

Chemical Engineering
2010 Thesis Fellow

Sukhjinder S. Sidhu, PhD, Thesis Advisor
Energy and Environmental Engineering Division, Research Institute

Thesis Title

Allocation of Carbon throughout Growth Phases of Chlorella Vulgaris

Description

Carbon dioxide, a major green house gas component, is released through human and animal activity. As the threat of global warming looms, sequestration of carbon dioxide becomes increasingly important. Microalgae require carbon dioxide to grow and already remove vast quantities of carbon dioxide from the atmosphere. Algae store this carbon as proteins, carbohydrates and lipids, which can be converted into nutritional supplements, fertilizer, biofuels and other valuable products. Little is known about the proportions in which algae are able to produce proteins, carbohydrates and lipids, particularly throughout different growth phases. This research utilizes biochemical assays and algal growth analysis to characterize carbon allocation of Chlorella vulgaris. This study also outlines the procedure for the characterization of additional species, the results of which would enable selection of the optimal algae species and harvest time for specific carbon sequestration needs and desired end products.

Maura E. LaMendola

3:20 pm, Room 311

International Studies and French
2010 Cordell W. Hull Jr. International Fellow and 2010 Thesis Fellow

Marybeth Carlson, PhD, Thesis Advisor
History Department

Thesis Title

Liberty, Equality, Fraternity, and Secularism: French Politics and the Ban of Face-Covering Islamic Veils

Description

In 2009 French politics made international news for proposing legislation that would outlaw Islamic veils in the public sphere of the French Republic. After a lengthy debate and much international criticism, the decision to prohibit face-covering Islamic veils was passed almost unanimously in the French Senate, and is now codified in French law. Since the start of this very public debate, Belgium, the Netherlands, and the city of Barcelona, Spain, have also made efforts politically to prohibit the veils in public. This thesis covers a variety of events from French history related to the recent ban, an analysis of the political atmosphere during the time of the legislation's passing, and an examination of the role that anti-racist and human rights organizations in France have played, based on research conducted.

Jane M. Neiheisel

3:20 pm, Room 312

PreMedicine
2010 Thesis Fellow

Madhuri Kango-Singh, PhD, Thesis Advisor
Biology Department

Thesis Title

Understanding How Mutations in the Tumor-suppressor Gene, Scribble, Interact with JNK- and Hippo-Cell Signaling Pathways to Induce Metastatic Proliferation and Cancer Progression

Description

Cell proliferation and cell death are tightly regulated in both the pre- and post-natal life of an individual. Defects in the regulation of these important processes are causal to developmental anomalies/defects. The same processes that control development are also strongly implicated in cancer. Scribble, Hippo, and JNK are molecular pathways that are important for development in the common fruit fly, Drosophila melanogaster. I use genetic experiments to examine how these pathways interact to induce cancer.

Joshua S. Cain

3:20 pm, Room 211

Mathematics

Lynne C. Yengulalp, PhD, Thesis Advisor
Mathematics Department

Thesis Title

Coarser Pathwise-Connected Topologies of Metric Spaces

Description

A metric space is defined as a set of mathematical objects along with a distance function. Recent research has been concerned with determining whether or not the topology induced by a metric can be condensed in such a way that the resulting space is connected; however, not all of these results hold when applied to a search for pathwise-connectivity, a stronger condition than connectivity. This paper examines, and provides proofs for, which results generalize to pathwise-connectivity and which do not, with a focus on direct sums, compact spaces, and subsets of pathwise-connected spaces.

3:40 pm

Abigail M. Webb

Psychology
2010 Thesis Fellow

3:40 pm, Room 331
Ronald M. Katsuyama, PhD, Thesis Advisor
Psychology Department

Thesis Title
Prevalence and Nature of Undergraduate Stimulant Misuse

Description
Recent research indicates a growing problem of stimulant misuse among undergraduate students. One purpose of the current study was to determine the prevalence of stimulant misuse such as non-prescriptive use of medicines prescribed for ADHD. Another purpose was to examine reasons for such drug use. Some students may feel when using stimulants they produce their best work. Others may use stimulants to enable them to complete the required task under a time constraint though recognizing that it interferes with optimum task performance. The focus of the current study is to examine what sustains such use in the latter group and how this group differs from the first or from non-users. Among the measures collected are: frequency of stimulant use, feelings of pressure to succeed, the role of academic success in self-esteem, and self report of good study skills. The findings are discussed in terms of stimulant use and its role in maintaining positive self-attributions.

Yi Zhao

Mathematics

3:40 pm, Room 211
Arthur H. Busch, PhD, Thesis Advisor
Mathematics Department

Thesis Title
Using Game Theory to Maximize Social Welfare

Description
Should public firms be privatized? What is the optimal decision of a public firm to maximize social welfare? In a duopoly game, where there is a domestic public firm competing with a foreign private firm, we use Stackelberg and Cournot game setting to explore the best strategies of both firms.

4:00 pm

Allison L. Chalupa

Biology and Psychology
2010 Thesis Fellow

4:00 pm, Room 211
Raymond E. Boissy, PhD, Thesis Advisor
Dermatology at University of Cincinnati
Robert J. Kearns, PhD, Thesis Advisor
Biology Department

Thesis Title
The Role of Galectin-3 in Melanization

Description
Melanocytes are a small population of cells in the skin that provide complexion coloration. To do this melanocytes synthesize an organelle, the melanosome, in which melanin

pigments are produced. The process of pigmentation is a complex process that involves many regulatory and enzymatic proteins, which is currently not thoroughly understood. Recently, a member of a family of carbohydrate binding proteins, Galectin-3, has been demonstrated to be involved in cellular trafficking in several cell types and putatively may be involved in the melanocyte. The goal of this project was to look into the role of Galectin-3 in melanization in hopes of better understanding the process.

Nicholas J. Direnzi

4:00 pm, Room 207

Mechanical Engineering
2010 Thesis Fellow

Andrew P. Murray, PhD, Thesis Advisor
Mechanical and Aerospace Engineering Department

Thesis Title

The Use of Elastically-Based Mechanical Energy Storage in Motor Vehicles

Description

One way for the United States to decrease dependency on foreign oil is through increases in automobile efficiency. Mechanical energy storage in motor vehicles with flywheels, for example, is often dismissed as a response to this problem due to the low energy density (that is, the stored energy per unit weight) when compared to batteries or gasoline. This research project takes a new look at one form of mechanical energy storage — springs — to see if they can be integrated into vehicle components with improved automobile efficiency as the end goal. Specifically, hyper-elastics (a family of materials that includes rubber) are investigated as a means for energy storage. Typically, hyper-elastics are utilized because of their capacity for large deformations while dissipating shocks and being corrosion-resistant. In this research a variety of experiments confirm the capacity of certain hyper-elastics as an excellent means for energy storage. Several designs are then proposed utilizing hyper-elastics to create potential advances in vehicle components.

Nicholas V. Pesola

4:00 pm, Room 310

Psychology and Spanish
2009 Cordell W. Hull Jr. International Fellow and 2010 Thesis Fellow

R. Matthew Montoya, PhD, Thesis Advisor
Psychology Department

Thesis Title

Rejection and Interpersonal Attraction

Description

Past research has shown that we tend to like people when they accept us more than when they reject us. However, it is also known that rejection is often necessary and perhaps an inevitable consequence of human interaction. My research set out to identify likeable ways to reject someone such that the rejected individual counterintuitively likes the rejecter immediately after being rejected. Eighty participants interacted with a trained actress, who first listened to the participant state her case as to why she should be selected for the team leader role and then gave the participant one of eight types of verbal feedback. Interpersonal attraction toward the actress, attitude change, and physiological arousal were measured following the interaction.

4:20 pm

Brittany A. Demmitt

4:20 pm, Room 211

Biology and Chemistry
2010 Thesis Fellow

Jayne B. Robinson, PhD, Thesis Advisor
Biology Department

Thesis Title

The Effect of Silver Nanoparticles on the Bacteria and Plants Essential to the Global Nitrogen Cycle

Description

The use of manufactured nanoparticles (NPs) in consumer products is becoming more prevalent. The nanoparticle form of a substance can have radically different properties in terms of reactivity and toxicity than the bulk material form. One area of concern is the effect nanoparticles may have on the environment, e.g., on the earth's nitrogen cycle. This study investigated the effect of silver NPs on two different bacteria, Sinorhizobium meliloti and Pseudomonas aeruginosa, that are key players in the global nitrogen cycle. The various types of silver NPs tested were all shown to be toxic to both types of bacteria at various population densities. We also determined that exposure of Medicago truncatula, the plant host of S. meliloti, to silver NPs stunted the formation of the symbiotic relationship of these partners, as evidenced by lower rates of nodulation. Our results suggest that accumulation of silver NPs in the soil could harm this symbiotic relationship and ultimately disrupt the nitrogen cycle.

Joel E. Schmidt

4:20 pm, Room 207

Chemical Engineering

Douglas S. Dudis, PhD, Thesis Advisor
Air Force Research Laboratory
Kevin Myers, DSc, Thesis Advisor
Chemical and Materials Engineering Department

Thesis Title

Synthesis and Crystal Structure of Two Isomeric Benzotrithiophene Compounds Doped with TCNQ as Possible Organic Semiconductors

Description

Organic semiconducting materials are of considerable research interest because of their potential to offer a low cost alternative to traditional semiconducting materials. One class of these compounds, known as quasi-one-dimensional (Q1D) materials, have been found to exhibit semiconducting behavior, spurring further research into this type of materials. Two isomeric benzotrithiophene compounds were synthesized and then doped in solution with TCNQ to form charge transfer complexes. Single crystal analysis was performed on both of the complexes to determine the molecular packing. Neither complex has segregated Q1D molecular packing, suggesting that they will not be semiconductors. This was verified with one of the complexes using a two-point electrical resistivity measurement, which showed it to be an insulator. Further work is underway with these complexes to quantify the degree of charge transfer.

Leah M. Schumacher

Psychology
2010 Thesis Fellow

4:20 pm, Room 310
R. Matthew Montoya, PhD, Thesis Advisor
Psychology Department

Thesis Title

Focusing on My Appearance Is Exhausting: Self-Exposure and Self-Regulation Failure for Individuals with Low Body Esteem

Description

Self-regulation, or self-control, refers to the ability of the self to manage its responses, including its thoughts, emotions and behaviors. Self-regulation is believed to operate like a muscle — just as a muscle tires from use, when we have to "regulate" our behavior it causes temporary impairments (i.e., ego depletion) on later tasks. I conducted two studies that examined whether having to focus on one's appearance consumes self-regulatory strength in individuals who are dissatisfied with their appearance. Participants in both studies first focused on either an image of their own face or a control image for a short period of time. Participants in Study 1 then completed a food evaluation task, which was used to assess the participants' degree of ego depletion, while participants in Study 2 read and responded to several scenarios concerning sexual infidelity, which served the same purpose. The results of Study 1 provided preliminary support for the ego depletion hypothesis, while the results of Study 2 were inconclusive.

Tierney A. Stinson

Middle Childhood Education and Spanish
2010 Thesis Fellow

4:20 pm, Room 312
Janet M. Herrelko, EdD, Thesis Advisor
Teacher Education Department

Thesis Title

Differentiated Instruction in the Mixed-Ability Middle School Mathematics Classroom: A Study on the Four-Tier Format

Description

This study evaluates the effectiveness of a tiering format to differentiate instruction within the mixed-ability middle school mathematics classroom. Differentiated instruction is an approach to teaching that upholds the belief that all students can effectively demonstrate their knowledge when instruction meets their ability-level. Although there are a variety of ways to differentiate, I chose to test differentiation by ability. Using Dr. Janet Herrelko's four-tier format, I divided students in a fifth grade mathematics class into ability based tiers. Tier 0 included high-achieving students, Tier 1, average-achieving students, and Tier 2, low-achieving students. Tier 3 typically includes those students with Individual Education Plans; however, there were no Tier 3 students in my class. As a control, I taught one unit without using the tiering format, then, developed another unit with tiering to test my hypothesis. I compared the results of pre and post-tests from each unit to evaluate the effectiveness of tiering on student achievement.

4:40 pm

Carly R. Monfort

4:40 pm, Room 310

Adolescent to Young Adult Education
2010 Thesis Fellow

James B. Rowley, PhD, Thesis Advisor
Institute for Technology Enhanced Learning

Thesis Title

Project-Based Learning in a High School Integrated Science Classroom: A Comparison to Direct Instruction

Description

This study analyzes the relative engagement level and performance of 9th grade Integrated Science students using varying instructional methods. Using direct instruction as a control group, a comprehensive, project-based learning unit based on the Dayton Regional STEM Center's curriculum design template is adapted and implemented. The unit, which addresses basic physics concepts, encourages student involvement and relevance to student life. It considers applicable local career connections, encourages interdisciplinary activities, and asks the students to use the Engineering Design Process to create an artifact while addressing Ohio Academic Content Standards. The results of such a comparison analyze the engagement, attention and performance using the two methods. Data analysis of individual assessment scores on teacher-made assessments from the two units, as well as qualitative data related to student response surveys following each unit, are used to compare the success of the respective curricula.

Erin M. Phelps

4:40 pm, Room 207

Electronic Media Communications

Leslie H. Picca, PhD, Thesis Advisor
Sociology, Anthropology and Social Work Department

Thesis Title

The Cultural Implications of Relationship Articles in Women's Magazines Online

Description

This study focuses on relationship and sex articles in online content for six popular women's magazines. The magazine web pages were chosen based on their target demographics with a special focus on age. Over two weeks, the relationship pages for *Seventeen*, *Cosmopolitan, Glamour, Essence, Redbook*, and *Ladies' Home Journal* were periodically checked in order to determine the types of messages being sent to women roughly between the ages of 15 and 50. Topics such as dating, courtship, sexual behaviors and advice, and long-term relationship characterizations were all relevant in my study of the types of messages that are most prevalent in depictions of relationships and sexuality today.

James R. Saywell
Psychology and Political Science

4:40 pm, Room 331
Melissa J. Layman-Guadalupe, PhD, Thesis Advisor
Psychology Department

Thesis Title
Evolving Standards of Decency:
An Exploration of the Interplay of Developmental Psychology and the Eighth Amendment

Description
Over the past several decades the United States Supreme Court has heard several pivotal cases involving "cruel and unusual punishment." My thesis explores these cases with the lens of developmental psychology. Specifically, I look at the Court's evolving standards of decency in judging what constitutes cruel and unusual punishment for children under the age of 18 through case study and developmental psychology research in order to hypothesize where the Court is heading into the future.

advisors

Advisor	Department
Anderson, David, PhD	Research Institute
Bauer, John J., PhD	Psychology
Benin, Vladimir A., PhD	Chemistry
Bennett, Jana M., PhD	Religious Studies
Boehnlein, James M., PhD	English
Boissy, Raymond E., PhD	Dermatology, Univ. of Cincinnati
Browning, Charles E., PhD	Chemical and Materials Engineering
Busch, Arthur H., PhD	Mathematics
Carlson, Marybeth, PhD	History
Carter, Michael S., PhD	History
Castellano, Joseph, PhD	Accounting
Davies, Susan C., EdD	Counselor Education and Human Services
Davis, Susan T., PhD	Psychology
DesAutels, Peggy J., PhD	Philosophy
Dolan, Patricia E., RD, LD	Health and Sport Science
Donohoe-Fillmore, Betsy K., PhD	Health and Sport Science
Dudis, Douglas S., PhD	Air Force Research Institute
Elhamri, Said, PhD	Physics
Espinoza, Isabel J., PhD	Languages
Finomore Jr., Victor S., PhD	Air Force Research Laboratory
Greenlee, Janet S., PhD	Accounting
Hallinan, Kevin P., PhD	Mechanical and Aerospace Enginnering
Hansen, Karolyn M., PhD	Biology
Herrelko, Janet M., EdD	Teacher Education
Hong, Yiling, PhD	Biology
Hughes, Sheila Hassell, PhD	English
Kango-Singh, Madhuri, PhD	Biology
Karns, Margaret P., PhD	Political Science
Katsuyama, Ronald M., PhD	Psychology
Kearns, Robert J., PhD	Biology
Krane, Carissa M., PhD	Biology
Lafdi, Khalid, PhD	Research Institute
Lau, Terence, JD	Management and Marketing
Layman-Guadalupe, Melissa J., PhD	Psychology
McEwan, Ryan W., PhD	Biology
Montoya, R. Matthew, PhD	Psychology
Murray, Andrew P., PhD	Mechanical Engineering
Myers, Kevin, DSc	Chemical and Materials Engineering
Pedrotti, Leno M., PhD	Physics
Pérez, Nieves Ortega, PhD	Political Science, la Univ. de Granada
Picca, Leslie H., PhD	Sociology, Anthropology and Social Work
Poitras, Marc, PhD	Economics and Finance
Quill, Laurie L.	Research Institute
Rapp, John E., PhD	Economics and Finance
Richards, Stephen B., EdD	Teacher Education
Robinson, Jayne B., PhD	Biology
Roecker-Phelps, Carolyn, PhD	Psychology
Rowley, James B., PhD	Teacher Education
Salisbury, Wm. David, PhD	MIS, OM and Decision Sciences
Seitzer, Jennifer, PhD	Computer Science
Sidhu, Sukhjinder S., PhD	Research Institute
Singh, Amit, PhD	Biology
Street, P. Eric, DM	Music
Swavey, Shawn M., PhD	Chemistry
Vanderburgh, Paul M., PhD	Graduate Education
Wells, Rebecca M. J., PhD	Management and Marketing
Wilhoit, Stephen W., PhD	English
Wilkens, Robert J., PhD	Chemical and Materials Engineering
Wright, Shirley J., PhD	Biology
Yengalalp, Lynne C., PhD	Mathematics

Presenter	Room and Session time
Aldrich, Casey A.	Room 311, 2:00 pm
Awonuga, Eunice O.	Ballroom, 3:00 pm
Benze, James A.	Room 331, 2:00 pm
Bilocerkowycz, Sonya	Room, 312, 2:00 pm
Cain, Joshua S.	Room 211, 3:20 pm
Castle, Courtney E.	Room 331, 3:20 pm
Chalupa, Allison L.	Room 211, 4:00 pm
Claricoates, Emily R.	Ballroom, 1:00 pm
Cobb, Katherine M.	Room 207, 3:20 pm
Conner, Abigayle B.	Ballroom, 2:20 pm
Cook, Brittany A.	Room 312, 1:40 pm
Demmitt, Brittany A.	Room 211, 4:20 pm
Direnzi, Nicholas J.	Room 207, 4:00 pm
Eckberg, Karl W.	Room 310, 1:00 pm
Faeth, Julia L.	Room 310, 3:20 pm
Falter, Megan R.	Room 310, 2:20 pm
Finnegan, Teresa S.	Room 211, 2:40 pm
Fries, Kaitlin M.	Room 207, 3:00 pm
Glynn, Catherine E.	Ballroom, 2:40 pm
Graci, Matthew E.	Room 311, 2:20 pm
Hankenhof, James A.	Ballroom, 1:20 pm
Hanus, Nichole L.	Room 207, 2:20 pm
Harris, Alexandria C.	Room 331, 1:00 pm
Hartnett, Aubrey M.	Room 311, 3:00 pm
Haynes, Nicholas D.	Room 211, 3:00 pm
Heck, Zachary S.	Room 331, 2:40 pm
Henry, Anna C.	Room 211, 1:40 pm
Hogrebe, Nathaniel J.	Room 211, 1:00 pm
Johns, Christopher A.	Room 312, 3:00 pm
Kennedy, Eileen C.	Room 207, 1:40 pm
LaMendola, Maura E.	Room 311, 3:20 pm
Lawson, Abagail M.	Room 310, 1:40 pm
Lemon, Christopher J.	Room 312, 1:20 pm
Marsh, Elizabeth H.	Ballroom, 2:00 pm
McMasters, Brian P.	Room 211, 1:20 pm
Minichello, Michaela A.	Room 211, 2:20 pm
Monfort, Carly R.	Room 310, 4:40 pm
Mrowzinski, Sara J.	Room 311, 2:40 pm
Nainaparampil, Jaison J.	Room 312, 2:40 pm
Neiheisel, Jane M.	Room 312, 3:20 pm
Nicaise, Nolan M.	Room 207, 2:00 pm
Pesola, Nicholas V.	Room 310, 4:00 pm
Pfahler, Joanna M.	Room 312, 2:20 pm
Phelps, Erin M.	Room 207, 4:40 pm
Picklo, Sarah E.	Room 331, 2:20 pm
Plucis, Robert P.	Ballroom, 1:40 pm
Prindle, Daniel J.	Room 310, 3:00 pm
Puccetti, Matthew V.	Room 207, 1:00 pm
Saywell, James R.	Room 331, 4:40 pm
Schmidt, Joel E.	Room 207, 4:20 pm
Schumacher, Leah M.	Room 310, 4:20 pm
Shanahan, Maura H.	Room 331, 1:40 pm
Sideras, Zachary T.	Room 310, 2:00 pm
Stinson, Tierney A.	Room 312, 4:20 pm
Thomas, Paul W.	Room 331, 3:00 pm
Tomczyk, Michelle R.	Room 331, 1:20 pm
Untener, Emily A.	Room 211, 2:00 pm
Vanderburgh, Ellen M.	Room 207, 1:20 pm
Webb, Abigail M.	Room 331, 3:40 pm
Wilson, Dale F.	Room 310, 1:20 pm
Zhao, Yi	Room 211, 3:40 pm

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