

CREIGHTON UNIVERSITY
COLLEGE OF ARTS AND SCIENCES

7TH ANNUAL HONORS DAY
PROGRAM OF RESEARCH PRESENTATIONS

WEDNESDAY, APRIL 27, 2011

2:00PM—5:00PM

HARPER CENTER, 3RD FLOOR

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Welcome from the Dean

Welcome to Honors Day 2011.

Today we recognize certain achievements of Arts and Sciences students, and in doing so, honor them for the innovation, creativity, and dedication that they have demonstrated in their academic work. I have no doubt that as you stop in to listen to a presentation, to study a poster, or to ponder a piece of artwork, you will be amazed by what undergraduates can produce when provided the proper combination of freedom of inquiry, disciplined focus, and mentorship from faculty. What you see displayed here in the Honors students' projects is a culmination of intellectual curiosity, diligent research, and steadfast commitment to creating new knowledge. To the students, I say, we are proud of your contributions to Creighton and to your fields. We honor you.

Congratulations, Class of 2011!

Robert J. Lueger, Ph.D.
Dean, College of Arts and Sciences

Welcome from the Director

Dear Graduating Seniors,

I remember the first day you set foot on campus, filled with expectations, motivation, and passion. I remember your enthusiasm as you discovered the possibilities that were available to you. I remember your first days on the honors floor, as you laid the foundation for the strong community we see today. As I look back on the past four years, I can't help but admire how far you have come. Today's presentations are just the tip of the iceberg: you have dedicated several years to educating yourself in the liberal arts; you have shared your many talents with the community; you have spent countless months perfecting your research skills. The fruits of that hard work are readily apparent. We are very proud of all of your achievements and look forward to hearing about your upcoming accomplishments!

Congratulations, Class of 2011!

Dr. Isabelle D. Cherney
Michael W. Barry Professor
Director of the Honors Program

Oral Presentation Schedule by Time

| Time | Room | Presenter | Abbreviated Title | Page |
|-----------|--|------------------|---|------|
| 2:00-2:15 | 3027A | Hannah Novoa | Fatty Aldehyde Dehydrogenase and its Role in Sjögren-Larsson Syndrome | 8 |
| 2:00-2:15 | 3029A | Caitlin O'Brien | Influence of Ethnic Tourism on the Performance of Trad. Andean Music & Indigenous Identity | 8 |
| 2:20-2:35 | 3027A | Hilary Wething | Testing New Urbanism Theory: A Vehicle Ownership Model for the State of CT | 11 |
| 2:20-2:35 | 3029A | Jacob Huju | (Un)Delineated "Other"-ness Among Caribbean Immigrants | 5 |
| 2:40-2:55 | 3027A | Clifford Hecht | Assessing Metabolic State of Cultured Cells by Two-Photon Fluor. Intensity & Lifetime Imaging | 4 |
| 2:40-2:55 | 3029A | Timothy Foster | Traces Along the Way: Analyzing Artifacts of Modern Pilgrimage to Santiago | 3 |
| 2:40-2:55 | 3027 | Sumit Kar | Central ANG (1-7) Reduces Sympathetic Nerve Activity in Conscious Rabbits with Heart Failure | 6 |
| 3:00-3:15 | 3027A | Chelsea Mann | Ecological Spirituality: Renew the Earth, Renew Thyself | 7 |
| 3:00-3:15 | 3029A | Jillian Phillips | Unraveling Arthurian Legend: Malory's Use of Time in <i>Le Morte D'Arthur</i> | 9 |
| 3:00-3:15 | 3027 | Kate Mattern | The Success or Failure of Dialogue in Boethius and Plato | 7 |
| 3:20-3:35 | 3027A | Sumit Kar | Role of Sirtuin Deacetylases in Aortic Valve Stenosis | 6 |
| 3:20-3:35 | 3029A | Ana Heck | Children Without Countries: Legal & Human Rights Violations of Denying Birthright Citizenship | 5 |
| 3:40-3:55 | 3027A | Alex Pham | Modeling the Child Development Index | 8 |
| 3:40-3:55 | 3029A | Julia Smith | Optimizing Music Composition Using Fuzzy Set Theory: An iPad Application | 10 |
| 4:00-4:15 | 3027A | Brian Clifton | Knowing Herodotus | 2 |
| 4:00-4:15 | 3029A | Michael LaGarde | <i>Kill Bill</i> and <i>the Iliad</i> : Epic Heroes of the Past and Present | 7 |
| 4:00-4:15 | 3027 | Michael Thomson | French Language & Legacy in Lao Poetry: Pierre Somchine Niginn's <i>Dok Champa</i> | 10 |
| 4:15-4:40 | Remarks from Fr. Schlegel, VP Borchers, Dean Lueger, & Dr. Cherney Presentation of Awards Room 3023 | | | |
| 4:45-5:00 | 3053 | Kylee White | <i>Les Liaisons Dangereuses</i> : Playing the Game | 11 |
| 4:45-5:00 | 3027A | Anya Burkart | Optical Stretching: Determination of Single Cell Stiffness | 2 |
| 4:45-5:00 | 3029A | Mark Ridder | A Philosophical Account of Love | 9 |

Poster Presentation Schedule by Time

| Time | Room | Presenter | Abbreviated Title | Page |
|-----------|--------------------------------------|--------------------|--|------|
| 2:00-3:00 | 3023 | Allison Higa | Validity of Body Comp. Assessment Tech. in College-Aged Individuals | 5 |
| 2:00-3:00 | 3023 | Ashley Sitzmann | Reliability of Body Comp. Assessment Tech. in College-Aged Individuals | 9 |
| 2:00-3:00 | 3023 | David Gantz | Examining Access to Healthcare | 3 |
| 2:00-3:00 | 3023 | Hannah Grawe | Play on Words: The Effect of Childhood Activities on Verbal Ability | 4 |
| 2:00-3:00 | 3023 | Kaitlyn Brittan | Testing the Hypothesis of Increased Acid-stability of the Salivary Alpha-Amylase During Early Hominoid Evol. | 1 |
| 2:00-3:00 | 3 rd Floor Hall | Michael Davidson | Synthesis & Characterization of Ion Permeable Microcapsules for Remineralization | 2 |
| 2:00-3:00 | 3 rd Floor Hall | Michael Redmond | Funds Flow Model of Current Healthcare Sys. w/ Proposed Res. | 9 |
| 2:00-3:00 | 3 rd Floor Hall | Nicholas Bracciano | Nectar Plant Visits by Butterflies of Tallgrass Prairie | 1 |
| 2:00-3:00 | 3 rd Floor Hall | Ryan Wallenstein | Eudaimonism, Civic Duty, and the Comprehensive System | 10 |
| 3:10-4:10 | 3023 | Adam Grahn | Expression of the SLC26A11 Anion Transporter | 3 |
| 3:10-4:10 | 3023 | Colleen Begley | Cost-Effectiveness of Routine Lab. & Imaging in Follow-Up of Melanoma Patients | 1 |
| 3:10-4:10 | 3023 | Douglas Deever | Synthesis & Char. of Ethynylarene Comp. as Selective Fluorescent Chemosensors for Zn(II), Cd(II) & Pb(II) | 3 |
| 3:10-4:10 | 3023 | Joseph Smetter | "To Wii or Not to Wii?": Training Spatial Skills for Men and Women | 10 |
| 3:10-4:10 | 3023 | Kassandra Kerschen | Fatigue of Quadriceps in Parkinson's is Dependent on Contraction Speed | 6 |
| 3:10-4:10 | 3023 | Kelsey Chemelewski | Chick Embryo as Model for Study of Nicotine's Effect on Vasculature Sys. | 2 |
| 3:10-4:10 | 3 rd Floor Hall | Kristin Winfrey | Gauging Attitudes on the CWS at the New TD Ameritrade Park | 11 |
| 3:10-4:10 | 3 rd Floor Hall | Maren Hankey | Sesame Street: Science Learning in a Museum | 4 |
| 3:10-4:10 | 3 rd Floor Hall | Michael Kulig | Synthesis & Char. of Pyridinium-based, Tribromo Ionic Liquids | 6 |
| 3:10-4:10 | 3 rd Floor Hall | Timothy Foster | Traces Along the Way: Analyzing Artifacts of Modern Pilgrimage to Santiago | 3 |
| 4:15-4:40 | Remarks and Awards: Room 3023 | | | |

Master Presentation Schedule by First Name

| Time | Room | Presenter | Abbreviated Title | Page |
|-----------|-------|------------------|--|------|
| 3:10-4:10 | 3023 | Adam Grahn | Expression of the SLC26A11 Anion Transporter | 3 |
| 3:40-3:55 | 3027A | Alex Pham | Modeling the Child Development Index | 8 |
| 2:00-3:00 | 3023 | Allison Higa | Reliability & Validity of Body Comp. Assessment Tech. in College-Age Students | 5 |
| 3:20-3:35 | 3029A | Ana Heck | Children Without Countries: Legal & Human Rights Violations of Denying Birthright Citizenship | 5 |
| 4:45-5:00 | 3027A | Anya Burkart | Optical Stretching: Determination of Single Cell Stiffness | 2 |
| 2:00-3:00 | 3023 | Ashley Sitzmann | Reliability & Validity of Body Composition Assessment Tech. in College-Age Students | 9 |
| 4:00-4:15 | 3027A | Brian Clifton | Knowing Herodotus | 2 |
| 2:00-2:15 | 3029A | Caitlin O'Brien | Influence of Ethnic Tourism on the Performance of Trad. Andean Music & Indigenous Identity | 8 |
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Research Presentations

Colleen Begley
3:10-4:10, Room 3023

Major: English
Faculty Sponsor: Dr. Judith Kissel

COST-EFFECTIVENESS OF ROUTINE LABORATORY TESTS AND IMAGING IN THE FOLLOW-UP OF MELANOMA PATIENTS

Clinical examination has been proven effective in follow-up management of melanoma patients, but there is little evidence-based data to support the use of laboratory tests and imaging studies in melanoma follow-up. These tests can cost up to thousands of dollars and expose patients to large amounts of radiation. Using a retrospective chart review of Stage I-III melanoma patients from 2000-2010 at MetroHealth Medical Center in Cleveland, OH, our initial statistical analysis shows that most studies examined have a low yield in detecting melanoma recurrence in Stage III patients without clinical signs or symptoms.

Nicholas Bracciano
2:00-3:00, 3rd Floor Hall

Major: Journalism
Faculty Sponsors: Dr. Ted Burk and Dr. Jeffrey Maciejewski

NECTAR PLANT VISITS BY BUTTERFLIES OF TALLGRASS PRAIRIE

Butterfly nectaring censuses were performed by Dr. Theodore Burk and a number of undergraduate researchers at two Eastern Nebraska tallgrass prairies, Bauermeister and Allwine Prairies, from 2002-2010. Over 7000 visits were documented from 360 censuses, representing over 40 species of butterflies and 70 species of plants. This comprises the second largest such data set ever compiled. Results will be presented on the most common butterflies and most frequented flowers along with differences among habitat types. Degree of specialization in the butterflies and diversity of visitors for the flowers will also be presented. Data for two butterflies of special public interest, the Monarch and Regal Fritillary, will be highlighted.

Kaitlyn Brittan
2:00-3:00, Room 3023

Majors: Biology and Spanish
Faculty Sponsor: Dr. Soochin Cho

TESTING THE HYPOTHESIS OF INCREASED ACID-STABILITY OF THE SALIVARY ALPHA-AMYLASE DURING EARLY HOMINOID EVOLUTION

Amylase is the enzyme that is used to break down starch in digestion. Early hominoids evolved to have two copies of amylase: salivary amylase (AMY1) and pancreatic amylase (AMY2). I hypothesize that it would benefit the organisms if AMY1 has evolved the ability to withstand the acidic stomach environment and regain enzymatic activity in the neutralized environment of the duodenum to reinforce the starch digestion by AMY2 in the small intestine. To test this, I used a yeast vector to express human amylase and determined the protein activities in environments varying in pH. If my hypothesis is true, AMY1 will retain more activity than AMY2 after experiencing a low pH.

Research Presentations

Anya Burkart
4:45-5:00, Room 3027A

Majors: Physics and German
Faculty Sponsor: Dr. Michael G. Nichols

OPTICAL STRETCHING: DETERMINATION OF SINGLE CELL STIFFNESS

The optical stretcher is a dual-beam laser trap that can stretch individual cells. Using our ray-optics model, we can compute the optical stress on the cell surface. Measurements of the optical stress and cell deformation enable the computation of a single cell's stiffness. We have developed and used the stretcher to measure the compliance of multiple types of living cells. In this lecture I will discuss how optical stretching works, applications for optical stretching in biophysical research, and current improvements in optical stretching.

Kelsey Chemelewski
3:10-4:10, Room 3023

Major: Biology
Faculty Sponsor: Dr. Mark Reedy

CHICK EMBRYO AS A MODEL SYSTEM FOR STUDY OF NICOTINE'S EFFECT ON THE VASCULATURE SYSTEM

Some previous studies have found that nicotine-treated embryos showed grossly abnormal vasculargenesis. To further this research, we developed a technique to inject ink into the vessels of a chicken embryo. This ink technique allowed the embryo's vasculature to be easily analyzed for deformities. Eggs were incubated with treatments of 1000nM nicotine injected into the egg at day 2. At day 5, the embryos were accessed through windowing of the egg and injected with India black ink. Embryos were then collected, dehydrated, and cleared so pictures could be taken of the vasculature system.

Brian Clifton
4:00-4:15, Room 3027A

Majors: English and Greek
Faculty Sponsor: Dr. Geoff Bakewell

KNOWING HERODOTUS

The term *manthanô* is defined as "to learn especially by inquiry, understand, know" (Liddel & Scott). Herodotus uses the term eighteen times in Book One of *Histories*. By translating the word whenever it occurs, as well as looking at other verbs of knowing and perception in Herodotus, I plan to define *manthanô* by its use in Book One of *Histories*. The main focus of this paper will be the nuances of the verb rather than its denoted meaning. In doing so, a more complete understanding of the work (*Histories*) will be achieved.

Michael Davidson
2:00-3:00, 3rd Floor Hall

Major: Chemistry
Faculty Sponsor: Dr. Stephen Gross

SYNTHESIS AND CHARACTERIZATION OF ION PERMEABLE MICROCAPSULES FOR REMINERALIZATION

The objective of this study was to synthesize novel fillers for dental materials containing biologically available ions for use in remineralization formulations. A heterogeneous polymerization technique was utilized to prepare microcapsules whose physical properties were characterized. Our primary studies focused on the effects of membrane chemical structure, ion type, and aqueous salt concentration on ionic release rate from these microcapsules. We found a complex relationship between these variables affected ionic release.

Research Presentations

Douglas Deever
3:10-4:10, Room 3023

Major: Biochemistry
Faculty Sponsor: Dr. James Fletcher

SYNTHESIS AND CHARACTERIZATION OF ETHYNYLARENE COMPOUNDS AS SELECTIVE FLUORESCENT CHEMOSENSORS FOR ZN(II), CD(II) AND PB(II)

The goal of this study was to develop new Zn(II) fluorescent chemosensors operating via conformational restriction mechanisms under biologically relevant conditions. Utilizing triaryldiyne compounds with diamino substitution allowed for quick and simple creation of a library of sensor derivatives, including ortho, meta, and para isomers with two succinic, glutaric, or diglycolic anhydride based chelating units. NMR, MALDI-TOF MS, and HPLC analysis was used to characterize and determine the purity of products, and high throughput fluorescent binding assays were used to screen this family of sensors against a wide range of divalent cations.

Timothy Foster
2:40-2:55, Room 3029A & 3:10-4:10, 3rd Floor
Hall

Majors: Spanish & Hispanic Studies and Music
Faculty Sponsor: Dr. Erika Kirby

TRACES ALONG THE WAY: ANALYZING ARTIFACTS OF MODERN PILGRIMAGE TO SANTIAGO

The *Camino de Santiago* or Way of St. James, a medieval pilgrimage across Spain, has regained popularity and significance in recent decades. During the weeks-long trek, pilgrims leave inspiring written and visual “footprints” of their journey along the path and in pilgrim hostels. This project employs grounded theory and autoethnography to investigate the messages encountered on the author’s summer 2010 pilgrimage along the *Vía de la Plata*, a southern route of the *Camino*. From the traces emerge themes of personal development, simple beauty and physical challenge, religion, community, and motivational folk wisdom. Further analysis contributes to a greater understanding of the meaning of the modern pilgrimage.

David Gantz
2:00-3:00, Room 3023

Majors: Biology and Spanish & Hispanic Studies
Faculty Sponsor: Dr. Ted Burk

EXAMINING ACCESS TO HEALTHCARE

Mr. Gantz examines the barriers preventing certain groups of individuals from obtaining easy access to medical care.

Adam Grahn
3:10-4:10, Room 3023

Major: Biology
Faculty Sponsor: Dr. David He

EXPRESSION OF THE SLC26A11 ANION TRANSPORTER

SLC26 is a gene family coding for membrane proteins that exchange anions between the cytosol and extracellular space in many different organs of various species, including the inner ear of humans. The expression of SLC26A11 as a sulfate transporter is abundant, but its physiological mechanism is still unknown. In order to test the presence and expression of the protein encoded by SLC26A11 in the cell membrane, we transfected cells with the A11 protein labeled with both green fluorescent proteins (GFP) and yellow fluorescent proteins (YFP), and observed the cells under a microscope.

Research Presentations

Hannah Grawe
2:00-3:00, Room 3023

Major: Psychology
Faculty Sponsor: Dr. Isabelle Cherney

PLAY ON WORDS: THE EFFECT OF CHILDHOOD ACTIVITIES ON VERBAL ABILITY

This study examined the validity of a modified questionnaire of childhood activities in relation to predicting verbal ability. Previous research has consistently shown a gender difference in spatial and verbal abilities. This questionnaire, developed to examine the environment and experience of children in relation to verbal and spatial abilities, has been shown to relate the gendered play activities of a child and his or her spatial ability, suggesting that environment affects the later spatial ability of individuals. I examined the relationship between reported gendered play activities during childhood and verbal ability in order to see if a similar relationship exists. In addition, I modified the survey in order to see if a different scale of measurement and method of administration had any effect on the results.

Maren Hankey
3:10-4:10, 3rd Floor Hall

Major: Psychology
Faculty Sponsor: Dr. Isabelle Cherney

SESAME STREET: SCIENCE LEARNING IN A MUSEUM

Previous research examining the disparity of women in many science- and math-related fields has found that female high school students intending to pursue science-related careers reported visiting museums more frequently as a child. The present study examined interactions between 36 pairs of parents and their children in a museum. Results show that museum visits are positively correlated with how often the parent and child talk about science, the self-reported child ability in science, and self-reported child interest in science.

Clifford Hecht
2:40-2:55, Room 3027A

Major: Physics
Faculty Sponsor: Dr. Michael Nichols

ASSESSING THE METABOLIC STATE OF CULTURED CELLS BY TWO-PHOTON FLUORESCENCE INTENSITY AND LIFETIME IMAGING

This study used two-photon fluorescence lifetime imaging (FLIM) of intrinsic mitochondrial reduced nicotinamide adenine dinucleotide (NADH) to study the metabolic status of cells. Treatment with both metabolic uncouplers and inhibitors caused shifts in both the lifetime and populations of the free and bound pools of NADH, resulting in significant differences in the concentration of NADH. Concentration and lifetime also changed when the concentration of glucose in the cells was altered. The study shows that FLIM is a useful technique for assessing the metabolic state of cells and also compares our results to traditional intensity-based analysis.

Research Presentations

Ana Heck
3:20-3:35, Room 3029A

Majors: Spanish & Hispanic Studies and Philosophy
Faculty Sponsor: Professor Kyle Woolley

CHILDREN WITHOUT COUNTRIES: LEGAL AND HUMAN RIGHTS VIOLATIONS OF DENYING BIRTHRIGHT CITIZENSHIP

The constitution of the Dominican Republic denies citizenship to children born to parents in transit. Since the country considers many Haitian immigrants to be in transit, many children born in the Dominican Republic are denied citizenship. Statelessness affects children by limiting their access to rights that they would otherwise have as citizens. Some legislators in the United States are advocating that the United States change the fourteenth amendment in order to end birthright citizenship for children born to undocumented immigrant parents. My paper argues that denying birthright citizenship to children oftentimes violates International Law and limits the rights and opportunities of children.

Allison Higa
2:00-3:00, Room 3023

Major: Exercise Science
Faculty Sponsor: Dr. Anthony Bull

THE VALIDITY OF BODY COMPOSITION ASSESSMENT TECHNIQUES IN COLLEGE AGED INDIVIDUALS

Individuals may be confused as to which is the best method of body composition assessment based on comfort, time, price, location, validity, and reliability. We examined several different techniques for determining body composition including bioelectric impedance analysis, three-site skinfold, underwater weighing, and air displacement plethysmography using the Bod Pod®, the latest technology in body composition estimation. After comparing results to the gold standard of underwater weighing, we found the Bod Pod's readings to be valid. This finding did not hold true for some of the other techniques, with results varying between males and females.

Jacob Huju
2:20-2:35, Room 3029A

Major: Spanish & Hispanic Studies
Faculty Sponsor: Dr. Heather Fryer

“BLACK IS BEAUTIFUL, WHITE IS WONDERFUL, AND TRIGUEÑA IS TERRIFIC”: (UN)DELINEATED “OTHER”-NESS AMONG CARIBBEAN IMMIGRANTS

Ethnic identity is a self-created construct, personally and politically chosen, while racial identity is a construct that the dominant culture socially imposes upon another group of individuals. Scholars, commentators, and activists have struggled to redraw the theoretical lines of demarcation between and among “ethnic groups.” Immigrants have had to navigate their own identities in ways that were personal on the one side and social on the other. Scholars, along with policy makers, have constructed fixed identities for immigrants from Latin America and the Caribbean Basin. However, the immigrants themselves have dismantled those categories, creating, asserting, and reconfiguring their own American identities in ways that may be fixed or fluid, but are always political.

Research Presentations

Sumit Kar
2:40-2:55, Room 3027

Majors: Biology and Biochemistry
Faculty Sponsor: Dr. Alistair Cullum

CENTRAL ANG (1-7) REDUCES SYMPATHETIC NERVE ACTIVITY IN CONSCIOUS RABBITS WITH HEART FAILURE

Chronic heart failure (CHF) is due in part to elevated sympathetic nerve activity (SNA) and angiotensin II (Ang II). A metabolite of Ang II, Ang-(1-7), has been shown to oppose Ang II. However, the action of Ang-(1-7) on sympathetic tone is unknown, especially in CHF. We tested the hypothesis that infusion of Ang-(1-7) would reduce SNA and improve baroreflex control in rabbits with CHF. CHF rabbits showed increased resting SNA and depressed baroreflex gain. Ang-(1-7) treatment in CHF reduced SNA and increased baroreflex gain. These data suggest that Ang (1-7) may be an avenue of treatment for CHF by opposing Ang II.

Sumit Kar
3:20-3:35, Room 3027A

Majors: Biology and Biochemistry
Faculty Sponsor: Dr. Alistair Cullum

ROLE OF SIRTUIN DEACETYLASES IN AORTIC VALVE STENOSIS

Aging is a primary risk factor for aortic valve stenosis (AVS). Deficiency of sirtuins, a class of deacetylases, results in many aging related diseases in mice. No studies, however, have examined sirtuins in AVS. We tested the hypothesis that reductions in sirtuins increase histone acetylation and promote pro-calcific genes in human stenotic aortic valves. Several sirtuins were reduced in stenotic valves. This was associated with increases in the pro-osteogenic runt-related transcription factor 2 and increases in protein acetylation over a range of molecular weights. Our data support a model in which sirtuins may remodel chromatin and protein acetylation to predispose individuals to increases in ectopic calcification and AVS.

Kassandra Kerschen
3:10-4:10, Room 3023

Major: Doctorate of Physical Therapy
Faculty Sponsor: Dr. A.J. Threlkeld

FATIGUE OF THE QUADRICEPS IN PARKINSON'S DISEASE IS DEPENDENT ON CONTRACTION SPEED

Fifty-eight percent of people with Parkinson's Disease (PD) report fatigue is one of their top three most disabling symptoms affecting quality of life. Few studies have investigated the nature of muscle fatigue in PD. Our goal was to assess the fatigability of the quadriceps muscle at two different isokinetic contraction speeds in people with PD and to distinguish PD-related fatigue from the effects of aging. Results indicate that people with PD that complain of walking-induced leg fatigue appear to have a deficit in quadriceps muscle endurance that is not explained by aging alone.

Michael Kulig
3:10-4:10, 3rd Floor Hall

Majors: Chemistry and Classical Languages
Faculty Sponsor: Dr. Michael Miller

SYNTHESIS AND CHARACTERIZATION OF PYRIDINIUM-BASED, TRIBROMO IONIC LIQUIDS

Most organic solvents consist of neutral molecules in the liquid state at room temperature. Ionic liquids, however, are salts that can serve as both liquid solvent and reactant in several ionic and even radical addition reactions. We report the synthesis and characterization of a series of pyridinium-based, tribromo ionic liquids [RPy⁺][Br₃⁻]. These novel fluids will be examined for their efficacy in several regioselective electrophilic aromatic bromination reactions.

Research Presentations

Michael LaGarde
4:00-4:15, Room 3029A

Majors: Philosophy and Classical & Near Eastern Civilizations
Faculty Sponsor: Dr. Christina Clark

KILL BILL AND THE ILIAD: EPIC HEROES OF THE PAST AND PRESENT

The Iliad stands as a repository for Greek values. In contemporary society, values are represented and shared in a variety of mediums, and perhaps most prominently through film. Many films, intentionally or unintentionally, follow in the thematic and narrative footsteps of *The Iliad*. Quentin Tarrantino's *Kill Bill* is one such film. The newly burgeoning subfield of Classics focusing on the connections between the ancient world and modern film presents intriguing possibilities for understanding the relationship of these two works. This project offers new insight on the values of both the past and the present by examining the ways these two works overlap and diverge in their treatment of gender, violence, and revenge.

Chelsea Mann
3:00-3:15, Room 3027A

Major: Justice & Society
Faculty Sponsor: Dr. Roger Bergman

ECOLOGICAL SPIRITUALITY: RENEW THE EARTH, RENEW THYSELF

The Biblical summons to environmental responsibility rests in the narrative of Genesis in which God blesses humanity as stewards of His creation. My research explores the reciprocal relationships of environmental preservation and spirituality. Clearly, the divine is in the environment and the environment is in the divine. The cyclical nature of this symbiotic union is the culmination of the divine; the world is God's body. To elucidate this credence, I utilize knowledge gained by volunteering at Holy Wisdom Monastery in Middleton, Wisconsin. This ecumenical community of religious women lives their faith through restoration of the Wisconsin prairie.

Kate Mattern
3:00-3:15, Room 3027

Majors: Philosophy and Music
Faculty Sponsors: Dr. Jeffrey Hause and Dr. William O. Stephens

THE SUCCESS OR FAILURE OF DIALOGUE IN BOETHIUS AND PLATO

Philosophy as dialogue is an interesting genre; it provides the writer with a conversation partner and the reader with a ready-made discussion. In many of Plato's Socratic dialogues, Socrates and his interlocutor do not reach a satisfactory answer to the question they attempt to settle. Boethius' *Consolation of Philosophy* succeeds in answering the question Boethius asks in the beginning of the dialogue. If the relative terms of success in dialogue are simply reaching an appropriate answer to the problem addressed by the dialogue, Boethius' is successful while Plato's fails. However, if the goal is elucidating philosophical truth, then success in dialogue becomes more ambiguous.

Research Presentations

Hannah Novoa
2:00-2:15, Room 3027A

Majors: Biology and Spanish & Hispanic Studies
Faculty Sponsor: Dr. Mark Reedy

FATTY ALDEHYDE DEHYDROGENASE AND ITS ROLE IN SJÖGREN-LARSSON SYNDROME

Sjögren-Larsson Syndrome (SLS) is an inherited neurocutaneous disorder characterized by spastic diplegia, severe ichthyosis, and mental retardation. It is caused by mutations in the ALDH3A2 gene on chromosome 17, which codes for the enzyme Fatty Aldehyde Dehydrogenase (FALDH). I investigated whether toxic aldehydes accumulate in cultured fibroblasts from SLS patients under conditions of oxidative stress using a lipodomic approach. My results provide the first-documented evidence that several lipid products of oxidative stress, particularly 7-oxo-4-hydroxy-5-heptenoate, accumulate in SLS fibroblasts but not in healthy cells. Overall, the results suggest that patients with SLS may be more susceptible to fatty aldehyde toxicity associated with oxidative stress.

Caitlin O'Brien
2:00-2:15, Room 3029A

Majors: Anthropology and Spanish & Hispanic Studies
Faculty Sponsor: Dr. Alex Rödlach

THE INFLUENCE OF ETHNIC TOURISM ON THE PERFORMANCE OF TRADITIONAL ANDEAN MUSIC AND INDIGENOUS IDENTITY

As technology expands social and economic connections worldwide, the influence of globalization continues to affect individual identity and the meanings associated with traditions and customs. Examining more closely the particular influence of ethnic tourism, this paper explores the cultural construction and invention of tradition that occurs presently in the performance of traditional Andean music in urban centers in Peru. Using literary analysis, interview, and participant observation, I have studied two different musical performance groups in Cusco—one of rural migrants and the other of urban mestizos. Analysis of this research demonstrates that the effects of globalization, specifically in the form of ethnic tourism, have reversing properties that shift historical understandings of identity from 'transmitted' to 'created' in the present.

Alex Pham
3:40-3:55, Room 3027A

Major: Mathematics
Faculty Sponsor: Dr. John Mordeson

MODELING THE CHILD DEVELOPMENT INDEX

Using fuzzy mathematics techniques and expert opinion, this paper ranks countries with respect to their relative progress in childcare. In doing so, it creates a model that places weights on the components of child growth, allowing us to see what areas to focus on when considering the environment in which a child develops. Our model uses expert opinion to weight the significance of the factors that make up child development.

Research Presentations

Jillian Phillips
3:00-3:15, Room 3029A

Majors: English and French & Francophone Studies
Faculty Sponsor: Dr. Fidel Fajardo-Acosta

UNRAVELING ARTHURIAN LEGEND: MALORY'S USE OF TIME IN *LE MORTE D'ARTHUR*

There has been much debate as to how to classify Sir Thomas Malory's *Morte D'Arthur*. Is it a translation, a compilation, or an original chronicle? Related questions are those of whether the work is a unified whole or an assembly of separate episodes and whether it is French or English. In removing the *entrelacement* style of the French romance, Malory introduces a new element: time. Prior to the Renaissance there is no classification of a beginning and middle age; there is instead an *entrelacement* of events and elements of a "perpetual present" not entirely unlike that of the ancient epics after which many of the medieval romances were modeled. *Morte D'Arthur* indicates a transformation of the medieval understanding of time to the Renaissance conception of a forward moving history.

Michael Redmond
2:00-3:00, 3rd Floor Hall

Majors: Mathematics and Spanish & Hispanic Studies
Faculty Sponsor: Dr. Michel Mallenby

A FUNDS FLOW MODEL OF THE CURRENT HEALTHCARE SYSTEM WITH PROPOSED RESOLUTION

Dr. Mallenby and I use healthcare statistics collected from reliable sources to create a funds flow model of the current healthcare system with factors, such as the number of uninsured, and sub-factors, such as the lack of personal responsibility. We then analyze this funds flow model using category relations to discover which areas can be altered to provide the most cost-effective method of creating minimally adequate health care available to all U.S. citizens and legal aliens. Then, we implement our voucher system into the model to investigate the outcomes that our proposed system would have on health care distribution.

Mark Ridder
4:45-5:00, Room 3029A

Major: Philosophy
Faculty Sponsor: Dr. Anne Ozar

A PHILOSOPHICAL ACCOUNT OF LOVE

In my project, I argue that love is a desire to fulfill the potential of the other to be her best and truest self. We express our love by dialoging with our beloved as to how we can both aim to be our best selves. Using concrete examples, I carve out what things are love and what things fall outside of love according to my definition. Finally, I argue that love aims at an arrival at value sets that allow those who are in love to attain their fullest self as individuals in relation to each other.

Ashley Sitzmann
2:00-3:00, Room 3023

Majors: Exercise Science and Spanish & Hispanic Studies
Faculty Sponsor: Dr. Anthony Bull

THE RELIABILITY OF BODY COMPOSITION ASSESSMENT TECHNIQUES IN COLLEGE-AGED INDIVIDUALS

We examined several different techniques for determining body composition including bioelectric impedance analysis, three-site skinfold, underwater weighing, and air displacement plethysmography using the Bod Pod®, the latest technology in body composition estimation. As the Bod Pod® will be used in future studies, we determined the reliability of the plethysmography device recently purchased by the Exercise Science Department here at Creighton University.

Research Presentations

Joseph Smetter
3:10-4:10, Room 3023

Major: Psychology
Faculty Sponsor: Dr. Isabelle Cherney

“TO WII OR NOT TO WII?”: TRAINING SPATIAL SKILLS FOR MEN AND WOMEN

Research has consistently demonstrated gender differences in spatial abilities favoring men, and differential exposure to spatial activities has been hypothesized as one contributory factor. My study examined the effectiveness of video game play in training mental rotation skills for an undergraduate sample. The study was designed to investigate whether men and women differ in their level of mental rotation improvement as a result of training, and whether the motion-sensitive Nintendo Wii is more effective than a conventional gaming system at training spatial skills. Results indicate that video game training is more effective for women, although no between-console differences were observed.

Julia Smith
3:40-3:55, Room 3029A

Majors: Graphic Design and Journalism
Faculty Sponsor: Dr. Mark Wierman

OPTIMIZING MUSIC COMPOSITION USING FUZZY SET THEORY: AN IPAD APPLICATION

Scales are one of the most important aspects of music composition. Composers use them to develop melodies, harmonies, instrumental solos and more – and it can take years to become familiar with even the most common types of scales. Fuzzy set theory can improve the composition process by using simple comparisons to identify the most compatible scales for a given chord progression – often highlighting lesser-known scales in the process. “Composition Assistant” is a mobile application designed to implement this theory while focusing on user experience and visual appeal. It is written in Objective C and optimized for iPad deployment.

Michael Thomson
4:00-4:15, Room 3027

Major: French & Francophone Studies
Faculty Sponsor: Dr. David Vanderboegh

FRENCH LANGUAGE AND LEGACY IN LAO POETRY AS SEEN IN PIERRE SOMCHINE NIGINN'S *DOK CHAMPA*

The French colonization of Southeast Asia had a significant impact on the country of Laos. In Pierre Somchine Ngin's collection of poems *Dok Champa*, we can see the French influence on Lao poetry. Analysis of the poetry reveals the dualistic nature of the collection. The structure and form of the poetry is classically French, while the subject of the collection is truly Lao. I translated the entire collection of poems from French to English and, with the translation, anglophones can get a glimpse of Lao culture.

Ryan Wallenstein
2:00-3:00, 3rd Floor Hall

Majors: Philosophy and English
Faculty Sponsor: Dr. Fidel Fajardo-Acosta

COMMERCIALIZED EDUCATION: ENCROACHMENT ON THE STATE OF THE SCHOLAR

In this study, I interpret and analyze developments in today's system of higher education. I present traditional conceptions of an educational system and its goals, and compare these with the missions and actions of today's colleges and universities. Drawing from experience and other sources I make the case that today's post-secondary educational institutions assume a rapidly increasing level of influence from outside institutions—namely private business entities. I consider just how this influence is exerted, and observe how universities have adapted. Ultimately, I argue that this influence denigrates true education and speculate about the impact it will have if left to its course.

Research Presentations

Hilary Wething
2:20-2:35, Room 3027A

Majors: Mathematics and Economics
Faculty Sponsor: Dr. Kristie Briggs

TESTING NEW URBANISM THEORY: A VEHICLE OWNERSHIP MODEL FOR THE STATE OF CONNECTICUT

The ability to predict vehicle ownership for different types of development in diverse community conditions is a powerful tool for state and local policy makers assessing the impacts of development and developing land use policy. New Urbanism theory supports the prevalence of density metrics in models predicting vehicle patterns; however, the magnitude of these metrics has not been tested at the state level. This vehicle ownership model seeks to test the validity of New Urbanism theory by modeling ownership based on income, density, and geographic characteristics, using a statistical analysis of census data in Connecticut census tracts.

Kylee White
4:45-5:00, Room 3053

Major: Theatre Performance
Faculty Sponsor: Dr. Bill Hutson

LES LIAISONS DANGEREUSES: PLAYING THE GAME

A performance from *Les Liaisons Dangereuses* and a look at the twisted relationship between the key players in the game: La Marquise de Merteuil & Le Vicomte de Valmont. My role as Merteuil allowed me to showcase what I had already learned, while granting me the biggest opportunity to grow as an actress. This show was (is) the culmination of all my study while at Creighton.

Kristin Winfrey
3:10-4:10, 3rd Floor Hall

Major: Marketing
Faculty Sponsor: Dr. John Workman

GAUGING ATTITUDES ON THE COLLEGE WORLD SERIES AT THE NEW TD AMERITRADE PARK

With the shift in location of the College World Series from Rosenblatt Stadium to the new TD Ameritrade Park, we attempted to determine opinions of the venue change as a marketing tool. In our research, we surveyed college students from Creighton University and the University of Nebraska-Omaha and found that while students are looking forward to the new stadium, they do have some concerns.

About the Honors Program

Honors Program Directors

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About the Honors Program

Honors Executive Board Members

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Dr. Theodore Burk, Department of Biology

Dr. Isabelle Cherney, Department of Psychology and Ed.D in Leadership Program

Ms. Jesska Daugherty, Residence Life

Fr. Michael Flecky, Department of Fine and Performing Arts

Dr. Heather Fryer, Department of History

Dr. Jeffrey P. Hause, Department of Philosophy

Dr. Nicolae Roddy, Department of Theology

Dr. Janet E. Seger, Department of Physics

Dr. Julianne Soukup, Department of Chemistry

Dr. Brooke Stafford, Department of English

Dr. Eileen Wirth, Department of Journalism and Mass Communication

Dr. Greg Zacharias, Department of English

Student Members:

Mr. Timothy Foster

Mr. Emmett O'Keefe

About the Honors Program

Honors Student Board Members, 2010-2011

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Madeline Novoa, Vice President of Operations
Emmett O'Keefe, Vice President of Academics
Lydia Riehl, Vice President of Student Affairs
Evan Holland, Vice President of Programming
Gloria Larson, Vice President of Public Relations

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Clint Kroeker
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Chris Culhane
Patrick Kilcoyne
Lauren Shoemaker
Danielle Wieseler

Senior Representatives

Nicholas Bracciano
Michael LaGarde
Mark Ridder
Michael Thomson

Honors Scholar Community Resident Advisors

Timothy Foster
Hannah Novoa

About the Honors Program

Honors Program Mission Statement

Rooted in the university's Christian, Catholic, and Jesuit traditions, the new Honors Program relies on the belief, articulated by Pope John Paul II, that "the united endeavor of intelligence and faith will enable people to come to the full measure of their humanity." Its goal is to foster a community committed to the ongoing education of students and faculty members as fellow seekers for truth. The program seeks individuals of all faiths and backgrounds who are intelligent, well prepared academically, highly motivated, and academically adventurous. The curriculum then immerses these students in an academically rigorous but flexible program of study guided by a faculty mentor who is charged with paying special attention to the personal dimension of learning. The program ultimately understands itself as a fellowship of inquiry whose individual members have dedicated themselves without reserve to love of learning.

The program is designed for talented imaginative students desirous of participation in small, discussion-oriented classes and in courses on interdisciplinary and topical issues. It provides students with special opportunities and challenges to enhance their undergraduate experience and to contribute to the intellectual and cultural life of the University. The program also offers eligible students the opportunity to pursue a course of study that complements her or his major.

Criteria for admission to the Honors Program include academic achievement and demonstrable interest in the program's aims and aspirations. Required application materials include an activities resume and two essays.