

2016

**Undergraduate Research, Scholarship and
Creative Investigations (URSCI) Exposition**

&

Global Learning Symposium

Wednesday, April 6

Parmer Hall

PROGRAM OVERVIEW – All presentations are oral except for those noted under URSCI or Global Learning Symposium Posters

| | URSCI 108 Parmer Hall | URSCI 115 Parmer Hall | URSCI 113 Parmer Hall | URSCI 107 Parmer Hall | URSCI 109 Parmer Hall | URSCI Posters Parmer Atrium |
|-------|--|---|--|--|---|---|
| 9:30 | Jubilee Award Panel Adilene Osnaya and Mayra Gaona <i>An Investigation of the Protective Power of Similar Ethnicity</i> Andrew Meissen <i>A Meta-Analysis of Autobiographical Memory Studies in Autism</i> | Gabrielle Lehmann <i>Unoccupied: An Illustrated Poetry Project</i> | Myhka McKinney <i>Central Themes of Hemingway</i> Daniel Blackmore-Penkava <i>Gender Issues in Hemingway</i> | Rajeh AlMutairi <i>ISIS</i> Ahmed Bin Afif <i>Saudi Arabia Vs. Iran</i> Ahmad Khudhari <i>Law, ICJ, and international relations</i> | Esma Susuz, Michal Hipner, Michael Lazowskileja, Josh Dassinger, Francisco Garcia, Oswaldo Lopez, Erik Virden, Nikita Belyaev, Arley Ixtlilco, Sebastian Taraska, Maria Beltran, Monica Kenar, Cristian Pintado, Jesus Diaz and Eric Ruelas <i>Different Database Systems</i> | Apparel Merchandising & Design Psychology Business |
| 10:30 | Jubilee Award Panel Wesley Zank <i>The First Rung: The Economic Imperative of Sweatshops in Developing Nations</i> William Schuneman <i>Economic and Catholic perspectives on Immigration</i> Victoria Goodman <i>Solidarity During Sanctions: How the Dominican Family Worked Towards Peace in Iraq</i> | Nicole Fledderman <i>Diagnosis and Treatment of Bipolar I Disorder in Children, Adolescents, and Adults: A Comparative Analysis</i> | Carolina Talavera, Margarita Angel, Quentin Becquey, Sarah Griffin, Sharon Rurangirwa and Raunel Urquiza <i>Washington Internship Institute</i> | Mariana Bojorquez, Elizabeth Cronin, and Iryna Labazevych <i>The Complicated Relationships Between Literature and Empathy</i> | Karen Zavala, Samantha Traczyk, Mary Lee, Theodora Ronstadt and Alejandro Elizalde <i>PictionAIRy</i> Jesus Diaz, Michael Reeves, Josh Dassinger and Walter Cepeda <i>RC Car with Vision Tracking</i> | Biology |
| 11:30 | Rocio Aguilar, Francisco Garcia and Dahlia Mijarez <i>The Effects of Microfinance</i> David Wendorf, Roger Padilla and Monica Ramirez <i>DU Development Economics Blog</i> | Jacob Faltin <i>Dante and the Human Condition</i> Legion Ivory <i>Replacing Dante</i> | Kelsie Chasten <i>A Replication of the Facial Feedback Hypothesis</i> Gabrielle Lehmann <i>Is Red Really Romantic? Replicating the Red-Romance Effect</i> | Global Learning Symposium Melissa Rohman, Sean Korbas, Nina Kucher, Katie Nicholson, Gisselle Payan, Magali Rebolledo, Sofia Sandoval, Claire Shunk, Katarzyna Tracz and Sophia Keberlein <i>"It's more than building a home; it's building relationships"</i> | Margarita Angel <i>Women in Power: A Feminist Examination of the Obama's Foreign Policy Team</i> Mazyad Almutairi <i>Immigration Systems and Human Needs</i> | Chemistry |

| | URSCI 108 Parmer Hall | URSCI 115 Parmer Hall | URSCI 113 Parmer Hall | Global Learning Symposium 107 Parmer Hall | Global Learning Symposium 109 Parmer Hall | Global Learning Posters Parmer Atrium |
|-------|---|--|---|--|--|--|
| 12:30 | Allison Ernst, John Mysz, Baron Ruffin, Maja Stankovic and Yuliya Melnyk <i>Family Matters: A Creative Exploration</i> | Andrea Hinojosa, Gabrielle Lehmann, Kathy Tracz, Monica Tamrazi, Kamil Dziedzic, Kevin Erazo, David Ciecko, Magdalena Thomas and Nicole Heiberger <i>BEES at Dominican: What Bees Can Teach Us!</i> | Adrian Paszek <i>Mechanistic Studies of the Thiamine Catalyzed Benzion Coupling Reaction</i> | Briana Love <i>Creating Awareness: Pictionary and Charades Game Design</i> | Brelynn Heneghan and Bruno Fernandez <i>Family Leave Policy and Child Health: Evidence from 25 OECD Countries</i> | Business Economics Study Abroad |
| 1:30 | Anna Kubik and Yanyan Chen <i>The Ten-Minute Play: A Streak of Theatrical Lightning</i> | Paulina Wojtach <i>The Connection Between Ethnicity, Motivation, and GPA</i> Dalal Abuqael <i>Testing the Life-Span of Caenorhabditis Elegans using Sulfur-Containing Compounds</i> | Kamil Dziedzic, Areej AlZahrani and Michael Nasca <i>Approaches to economic inequality</i> Kevin Erazo, Munawer Alazmi and Joseph Lyons <i>ROSCA</i> | Emilija Rasinskaite, Gabrielle Lehmann, Tajana Lukic, Dahlia Mijarez, Afredita Milla and Holly Quirk <i>University?</i> | LaKeita Burns <i>Modern Day Slavery: Human Sex Trafficking in the United States</i> Anastasia Zacour <i>Food FRNdzy</i> | |
| 2:30 | PARMER ATRIUM 2:30 ANNOUNCEMENT OF 2016 UNDERGRADUATE SUMMER SCHOLAR PROGRAM (USSP) AWARDS RCAS DEAN JEFFREY CARLSON | | | | | |

Bluhm Lecture Hall -108 Parmer (URSCI Oral Presentations)

9:30 | Adilene Osnaya and Mayra Gaona | Recipients of the Catherine of Siena Award for work in the social sciences

An Investigation of the Protective Power of Similar Ethnicity

Tina Ritzler

The purpose of this study was to investigate the presence of a Latino instructor as a moderator of stereotype threat. Our objective was to test the relationship between the presence of an instructor of the same ethnicity (Latino/a or white) as the participant (Latino/a or white) and participants' performance on an English assessment. We had three hypotheses: 1) students would perform better when instructed by a Latino instructor, 2) white participants, overall, would perform better than Latino participants, and 3) Latino participants would perform the same as white participants when instructed by a Latino experimenter but not when instructed by a white experimenter. White participants would perform the same regardless of the race of the experimenter. Those who chose to participate were randomly assigned to a testing session with either a white or Latino/a experimenter. All participants were exposed to a high-threat condition in which the test was presented as a diagnostic assessment of their English language competence. Results were expected to be consistent with previous research which has shown that having an instructor of the same ethnicity as students who face negative stereotypes improves performance among these students.

9:30 | Andrew Meissen | Recipient of the Albertus Magnus Award in the natural and physical sciences

A Meta-analysis of Autobiographical Memory in Autism

Robert Calin-Jageman

Many experiments across the globe suggest that autobiographical memory, or the memories of personally-experienced, personally-relevant events (e.g. a father's memory of the hospital room, his emotions, and wife at time of his newborn's birth), functions atypically in autistic individuals. However, not all studies agree on this, and so a meta-analysis, or a statistical technique that combines all of the results of similarly-conducted studies into one big result was performed on the topic of autobiographical memory in autism. The results of this project will be discussed with particular emphasis on the science of autism what such science can do to inform the fight against issues faced by and among autistic individuals.

10:30| Wesley Zank | Recipient of the Bartolome de las Casas Award for pre-professional work in business

The First Rung: The Economic Imperative of Sweatshops in Developing Nations

Kathleen Odell

Manufacturing industries are often vilified for their international operations by the advocacy community. They characterize production practices as oppressive and label facilities as 'sweatshops'. However, few understand why sweatshops exist and what role they play in economic development. This

project goes beyond the rhetoric and presents an empirical analysis of the impact of foreign production on labor markets, wages, and economic development in low-income nations.

10:30 | William Schuneman | Recipient of the Bartolome de las Casas Award for pre-professional work in business

Economic and Catholic Perspectives on Immigration

Kathleen Odell

This presentation will explore immigration through the intersecting perspectives of economics and Catholic Social Teachings. Economic theory says an introduction of new contributors to an economic system, immigrants entering the United States, will lead to the growth of the economy. Catholic Social Teaching argues that every human, no matter their ability, has the right to work. This includes people entering a new country to seek work. I will argue that immigration is a positive driver for creating a better world both economically and through the perspective of the Catholic Church.

10:30 | Victoria Goodman | Recipient of the Thomas Aquinas Award for work in the humanities

Solidarity during Sanctions: How the Dominican Family Worked Towards Peace in Iraq

David Perry

This presentation examines how the Dominican order of the Catholic Church in Iraq tried to build and maintain a sense of future during the time of the United Nations' sanctions against them. Through the community and faith shared between the Dominican orders in Iraq and the United States, the Dominican Family across the world verbally and physically protested the death and destruction caused by America's foreign policy. American Dominican Sisters not only stood in solidarity with their Iraqi Sisters, but contributed to the cause of rebuilding Iraq by organizing illegal relief trips, named "Voices for Veritas," through which they brought money, medicine, and hope to the desecrated country.

11:30 | Rocio Aguilar, Francisco Garcia, and Dahlia Mijarez

The Effects of Microfinance

Kathleen Odell

The ultimate goal of microfinance is to fight poverty and serve as a means for economic development in underdeveloped areas. The purpose of microfinance is to target low income clients who do not generally have access to traditional financial services. Microfinance is similar to traditional financial services including loans and savings opportunities. In our presentation, we will discuss microfinance as a tool. We will also explore the effectiveness of microfinance organizations, specifically focusing on Grameen Bank.

11:30 | David Wendorf, Roger Padilla, and Monica Ramirez

DU Development Economics Blog

Kathleen Odell

In our Special Topics in Economics class, we have focused on international development as it relates to historical achievements, or lack of achievements in various countries, and how development has shaped

where economies of the world lie today. We have studied different measurements in gauging development or under-development and recorded class findings on a near weekly basis. We have decided to create an Econ 498 blog to publish our weekly reports, as a way to communicate our research among ourselves and, hopefully, with readers outside of our class. Our presentation will look at the practice of blogging about development economics, which is a common way for development professionals communicate and learn. We will also discuss the successes and challenges we've encountered in publishing a blog of our student work.

12:30 | Allison Ernst, John Mysz, Baron Ruffin, Maja Stankovic, and Yuliya Melnyk

Family Matters: A Creative Exploration

Maggie Andersen

This reading will feature students from various disciplines, including business, sociology, and psychology who have each written a prose piece offering unique interpretations of the relationship between parents and children. These five narrators investigate conflicts regarding parenting strategies, immigration, and gender roles. In the end, this panel speaks to the enduring verities of loving and surviving.

1:30 | Anna Kubik and Yanyan Chen

The Ten-Minute Play: A Streak of Theatrical Lightning

Maggie Andersen

Two original playlets will receive staged readings (directed by local talent) in the hopes of expanding our great theatre community with young people, and bringing international voices and stories to life.

CTLE -115 Parmer Hall (URSCI Oral Presentations)

9:30 | Gabrielle Lehmann |Degree with Distinction and Honors Project

Unoccupied: An Illustrated Poetry Project

Frank Spidale

"Unoccupied" is the title of a year-long exploration in poetry and illustration. Presented as a series of eight detailed prints, this project integrates writing and visual art into a cohesive narrative. Each visual borrows inspiration from traditional printmaking techniques, carried forward into a modern digital format that ties old art styles to the modern day.

10:30 | Nicole Fledderman |Degree with Distinction and Honors Project

Diagnosis and Treatment of Bipolar I Disorder in Children, Adolescents, and Adults: A Comparative Analysis

Carlissa Hughes

Previously known as manic depression, bipolar disorder was once thought to occur rarely in children and adolescents. However, between 1994 and 2003 there was a 40-fold increase in the number of U.S. children under the age of 20 diagnosed with bipolar disorder. This drastic rise is a cause for concern for

several reasons. Specifically, despite the fact that there are important differences in the way bipolar I disorder presents in pediatric and adult populations, the current diagnostic and treatment guidelines in children and adolescents are largely based on and similar to those for adults. This study compares and contrasts standard diagnostic criteria and pharmacological treatment guidelines for bipolar I disorder in adult and pediatric populations and suggests guidelines for a re-evaluation and improvement of diagnosis, a process which requires conducting more careful and targeted research into bipolar I disorder in children and adolescents.

11:30 | Jacob Faltin |Independent Research Project

Dante and the Human Condition: A Study of the Comedy through a Modern Psychological Perspective

Tonia Triggiano

This presentation is an analysis of the *Commedia* using modern psychological approaches to better understand Dante's portrayal of the human condition. Discussion will include a synopsis of the poem and its structure, followed by its various applications to the science of psychology within the framework of medieval Catholicism. Connections with modern psychological therapy will be analyzed.

11:30 |Legion Ivory |Independent Research Project

Replacing Dante

Tonia Triggiano

Replacing Dante is a presentation that moves from the premise that everyone is capable of experiencing *La Commedia* in their own way by looking to music as a universal template. By way of this original composition, listeners will be challenged to seek and realize their own perspective as well.

12:30 | Andrea Hinojosa, Kathy Tracz, Monica Tamrazi, Kamil Dziedzic, Kevin Erazo, David Ciecko, Magdalena Thomas, Nicole Heiberger, and Gabrielle Lehmann

BEES at Dominican: What Bees Can Teach Us!

MaDonna Thelen

Bees have a lot to teach us about our environment and sustainability. In an interdisciplinary panel and poster session, students will discuss - from the perspectives of science, business, and social justice - the possibilities for creating a pollinator-friendly garden at Dominican and how this might be developed into community-based research and social action projects.

1:30 | Paulina Wojtach |Degree with Distinction Project

The Connection Between Ethnicity, Motivation, and GPA

Tracy Caldwell

There are a number of factors found to predict grade point average (GPA), including parental attachment, self-efficacy, and ethnic background (Yazedjian et al., 2009; Aguayo et al., 2011; Dennis et al., 2005; Vuong et al., 2010). Some evidence suggests that self-efficacy mediates the relationship between parental attachment and GPA, but that the relationship is specific to white students (Yazedjian

et al., 2009). If parental relationships do not play a role in affecting college outcomes for students of all ethnicities, then what role do parental relationships play for students? Does parental attachment shape GPA? Does self-efficacy mediate this relationship? Does this mediated relationship depend further on ethnicity? The current study examines both parental attachment and self-efficacy and the differences in how those motivators affect GPA for Eastern European first-generation college students and for Latino first-generation college students. A multiple regression analysis is expected to show that the effect of parental attachment on GPA will depend on self-efficacy, but that this relationship may be qualified by one's ethnicity.

Dalal Abuaqel |Degree with Distinction Project

Testing the Life-Span of Caenorhabditis Elegans using Sulfur-Containing Compounds

Pliny Smith

Aging is an unavoidable, universal, and biological phenomenon affecting all multicellular organisms. Although different hypotheses have been put forward to explain the cellular and molecular mechanisms of aging, recent studies made it progressively clear that it is indeed possible for organisms to have an increase in life extension through pharmacological intervention. This study is focused on investigating the interaction of genes controlling the rate of aging in wild type and DAF-16 *Caenorhabditis elegans* (*C. elegans*) strains; in order to understand the mechanisms of aging that could possibly uncover new therapeutic approaches for the treatment of age related disease. In this work, I report that exposing *C. elegans* to sulfur- containing compounds increases *C. elegans* lifespan. These compounds work through a mechanism independent of insulin- like signaling and are not involved in increased resistance of free radicals.

113 Parmer Hall (URSCI Oral Presentations)

9:30 | Daniel Blackmore-Penkava

Gender Issues in Hemingway

Daniel Anderson

This paper explores gender issues in the fiction of Hemingway, with a particular emphasis on *A Farewell to Arms*. The research project examines Hemingway's work in light of recent scholarship on social constructions of masculinity and sexuality.

9:30 | Myhka McKinney

Central Themes of Hemingway

Daniel Anderson

Throughout Hemingway's works, there are several interconnected themes that can be seen as central to much of his writing. These themes include war experiences and the effects of war, relationships, and manhood. In *A Farewell to Arms* and *The Sun Also Rises*, Hemingway utilizes these central themes by revolving his writings around them, sometimes emphasizing their absence rather than their presence.

10:30 | Carolina Talavera, Margarita Angel, Quentin Becquey, Sarah Griffin, Sharon Rurangirwa, and Raunel Urquiza

Living and Working in our Nation's Capital: Washington Internship Institute

Sherri Wick

The Washington Internship Institute allows students from all academic disciplines to live and work in our nation's capital and gain valuable, hands-on experience while contributing to leading agencies in the public, not-for-profit, and business fields. This panel presentation will consist of WII alumni who have interned with the Center for Community Change, the American Council on the Teaching of Foreign Languages, the National Defense University, the Embassy of the Gabonese Republic, and the office of U.S. Senator Dick Durbin.

11:30 | Gabrielle Lehmann |Independent Research Project

Is Red Really Romantic? Replicating the Red-Romance Effect

Robert Calin-Jageman

The color red has been reported to enhance romantic attraction for both women rating men and men rating women. These results have been criticized as possibly biased, due to the fact that every single result supported the hypotheses, however this criticism has in turn been questioned as an overuse of tests to identify publication bias. A direct replication was completed examining the effects of red on romantic attraction for both men and women, using both online and in-person samples. The replication used original materials and carefully ensured that rigor was taken to remove any participants who may have been colorblind or unattracted to the opposite sex, and therefore impact the ability to find accurate data. Despite this, we did not observe any strong effects of color on romantic attraction. For both men and women, no significant effect was found of red increasing attraction; in fact, although for men a very small effect was found in the predicted direction, the effect found for women (equally small) was in the opposite direction expected. Based on the data, it seems unlikely that a real effect of red on romantic attraction exists. This study emphasizes the importance of replication in science to either support or refute previous findings. By ensuring that findings can be replicated, we can improve the accuracy of current theories in science, and bring into question any studies that cannot be replicated.

11:30 | Kelsie Chasten |Independent Research Project

A Replication of the Facial Feedback Hypothesis

Robert Calin-Jageman

The original study conducted by Strack, Martin, and Stepper (1988) investigated the facial feedback hypothesis. Specifically, they asked students to rate cartoons while holding a pen in a manner that inhibits smiling (holding pen with lips) or while holding a pen in a manner that facilitates smiling (holding pen with teeth). They found that these different facial poses altered humor ratings, suggesting our emotions are intensified when coupled with the appropriate affective response. The facial feedback has been cited over 1,000 times and is taught in almost every introductory psychology course; however the original study has never been replicated. Just as in the original study, participants rated a set of cartoons while holding a pen in their lips or their teeth. The research project hoped to successfully replicate the

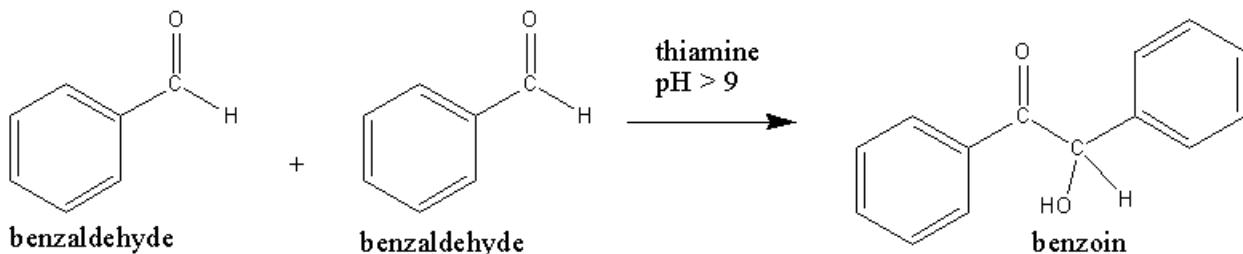
original study, however the results were insignificant. The results suggest that our emotions are not affected by our affective responses.

12:30 | Adrian Paszek |Independent Research Project

Mechanistic Studies of the Thiamine Catalyzed Benzoin Coupling Reaction

J. Brent Friesen

The chemical transformation of two benzaldehyde molecules into benzoin {2-hydroxy-1,2-di(phenyl)ethanone} in the presence of a thiamine catalyst is a well-known organic chemistry laboratory experiment.



We have shown that deoxybenzoin (2-phenylacetophenone) and benzil (diphenylethanedione) are also formed under these reaction conditions. In order to further explore the characteristics of this reaction, we have tested a variety of benzaldehyde derivatives. By comparing the reaction kinetics, completion, and the ratio of the three products we have explored the limitations of this reaction as well as synthesized novel chemical compounds. The cross reaction of two different benzaldehyde derivatives allowed us to explore the reaction on a deeper level by creating combinatorial competition conditions to produce 3 or 4 different possible combinations of each previously described reaction product. We have employed both chromatography (column, gas, & thin layer), and spectroscopy (nuclear magnetic resonance, infrared, & UV-vis) techniques to study the reaction products.

1:30 | Kamil Dziedzic, Areej AlZahrani, and Michael Nasca

Approaches to Economic Inequality

Kathleen Odell

Over the past few centuries, quality of life improved on a global scale. More people have access to healthcare, education and proper nutrition than ever before, yet the number of those who don't is still overwhelming. Selecting the approach towards solving these issues can be controversial but cannot be ignored. Based on the book: The Great Escape: health, wealth, and the origins of inequality by Angus Deaton, our group will discuss a number of global inequality issues and propose various initiatives to alleviate inequality.

1:30 | Kevin Erazo and Joseph Lyons

ROSCA

Kathleen Odell

We will be presenting the saving technique called the Rotating Savings and Credit Association, or ROSCA. The ROSCA is a widely used saving strategy which may contribute to financial empowerment for the very poor. In our Econ 498 class, we set up an experimental ROSCA with 11 members, through which we will save a combined \$605 over 11 weeks. In addition to discussing our own ROSCA experience, we will explore how these financial saving techniques affect wealth and poverty in poor countries.

107 Parmer Hall (URSCI Oral Presentations)

9:30 | Rajeh AlMutairi | Senior Thesis

ISIS

Patrick Homan

What impact does ISIS have on the international community? This presentation will describe their unorthodox methods from a military, social, and cultural perspective.

9:30 | Ahmed Bin Afif | Senior Thesis

Saudi Arabia Versus Iran and Ongoing Sunni-Shia Conflict

Patrick Homan

The rivalry between the Sunni and Shia sect of Islam has existed for several centuries. This dispute also results from culture differences between Arabs and Persians. At the present time, Saudi Arabia is the most influential country representing the Sunni faction, while Iran functions as the world's dominant Shia state. Conflicts currently occurring in Bahrain, Yemen, and Syria can be viewed as proxy wars between Saudi Arabia and Iran as well as the two branches of Islam each country represents. This presentation will examine the origin of the Sunni/Arab and Shia/Persian split and place relevant conflicts within the historical context.

9:30 | Ahmad Khudhari | Senior Thesis

Law, the International Court of Justice and international relations (rule of law in the international arena)

Patrick Homan

The International Court of Justice was formed with the aim of solving disputes between different countries. The Court was established in 1945 through a 33 chapter UN charter that covers various international judicial issues. The court has made significant rulings in terms of environmental law, covert wars, as well as maritime laws. Since its establishment, the court has also played a significant role in the establishment of international laws regarding environment as well as laws on Maritime delimitation. The World Court works hand in hand with the other UN organs in either establishment of law or ruling on security matters. The major organs that work with the court include the UN security council and UNESCO. Although the court has existed for 70 years, several questions have been raised regarding the

equality of its rulings and interpretation of several laws. Now having established the significance of the court , as well as it's various functions , it is only appropriate to challenge its effectiveness. This presentation will compare and contrast cases heard by the ICJ , to attest the competency of the World Court in setting the parameters for the international arena.

10:30 | Mariana Bojorquez, Elizabeth Cronin, Lauren McNeela, Kayla DeFrenza, and Iryna Labazevych

The Complicated Relationships Between Literature and Empathy

Sheila Bauer-Gatsos

Can literary texts create empathy in readers? If so, how? Do certain texts work better than others to increase a reader's empathic capacity? Should we look to literary texts for this kind of response at all? By reading both literary texts and recent research from literary studies, cognitive science, psychology, and philosophy, students will explore the complicated relationship between literature and empathy.

107 Parmer Hall (Global Learning Symposium Oral Presentations)

11:30 | Melissa Rohman, Sean Korbas, Nina Kucher, Katie Nicholson, Gisselle Payan, Magali Rebolledo, Sofia Sandoval, Claire Shunk, Katarzyna Tracz, and Sophia Keberlein

"It's more than building a home; it's building relationships"

MaDonna Thelen

Students who participated in an international service trip to Guatemala will share their experiences of building relationships with Mayan people from San Lucas Toliman, Guatemala. Students will discuss the hard work that goes into building a house and reflect on how service is about building relationships. This presentation will address issues of justice, developing cultural competence, community building and service.

12:30 | Briana Love

Creating Awareness: Pictionary and Charades Game Design

CarrieLynn Reinhard

My presentation will focus on how a card game medium can be used to generate awareness and get people to become more knowledgeable on a variety of topics that concern society. The design can be used by teachers or professors who want to use this game to teach their students about certain topics, such as domestic abuse, environmentalism, bullying, etc. There will be a presentation and examples on how the game would look.

2:30 | Emilia Rasinskaite, Gabriele Lehmann, Tajana Lukic, Dahlia Mijarez, Alfredita Milla, and Holly Quirk

University?

Michelle Sweeney

The value of college is hotly debated these days; is it worth the money, the effort, the time, the anxiety?

109 Parmer Hall (URSCI Oral Presentations)

9:30 | Esma Susuz, Michal Hipner, Michael Lazowskileja, Josh Dassinger, Francisco Garcia, Oswaldo Lopez, Erik Virden, Nikita Belyaev, Arley Ixtlilco, Sebastian Taraska, Maria Beltran, Monica Kenar, Cristian Pintado, Jesus Diaz, Eric Ruelas | Class Project

Different Database Systems

Cyrus Grant

A comparison of the features, strengths and weaknesses of a number of popular Database Management Systems. DBMSs presented will include SQL Server, MySQL, Apache Casandra, Oracle, Postgre SQL and Mongo DB.

10:30 | Karen Zavala, Samantha Traczyk, Mary Lee, Theodora Ronstadt, and Alejandro Elizalde

PictionAIRy

Esmail Bonakdarian

Pictionary is a team game where there is a person who draws a picture based on a randomly assigned word and a teammate tries to guess what they are drawing within an allotted time frame. This adaptation, called pictionAIRy, will put a new twist to this classic game. Instead of drawing on a white board, the player will draw in the air with their hand toward a webcam. Motion detection will detect the hand motions of the player and draw them on the screen. Players on two teams will press a buzzer to guess an answer, and the web cameras' microphone will be able to recognize the voice and respond whether the answer is right or wrong. This will be done using a raspberry pi, using software, and student-written code.

10:30 | Jesus Diaz, Michael Reeves, Josh Dassinger, and Walter Cepeda

RC Car with Vision Tracking

Esmail Bonakdarian

This presentation will explore a project on getting a Robot RC car with vision tracking to follow a colored ball.

11:30 | Margarita Angel | Senior Thesis

Women in Power: A Feminist Examination of Obama's Foreign Policy Team

Patrick Homan

This presentation aims to contribute to feminist international relations theory by examining and comparing the worldviews of women in American foreign policy making, specifically those within President Obama's administration. Feminist international relations theory focuses on the interrelationship between gender and world politics. One group of feminist scholars focuses on how international relations has been masculinized, and therefore forces women to have to act in a more masculine manner. Another offshoot of feminism theorizes about whether men and women conduct politics differently - with women tending to favor cooperation and human security. This paper tests

these feminist theory assumptions by conducting an operational code analysis on the women within Obama's foreign policy team. In particular, this study uses the speeches of former secretary of state Hillary Clinton, national security advisor Susan Rice, and ambassador to the United Nations Samantha Power to see if their worldviews support feminist literature and theorizing. The outcome of this operational code research can give quantitative insight into feminist international relations theory as well as the role of women in American foreign policy.

11:30 | Mazyad Almutairi | Senior Thesis

Immigration Systems and Human Needs

Patrick Homan

This presentation explores to the recent immigration crises. In my studies of international relations, I identified how these crises become politicized and becomes a struggle between right and left wing politicians in the United States as well as in Europe. In my presentation, I attempt to show the other side of this crises and how people forcefully pushed from their homes are trying to find the land of safety and security.

109 Farmer Hall (Global Learning Symposium Oral Presentations)

12:30 | Bruno Fernandez & Brelynn Heneghan | Independent Research Project

Family Leave Policy and Child Health: Evidence from 25 OECD Countries

Joyce Shim

This study examines the effects of family leave policy on child health across 25 Organization for Economic Co-operation and Development countries from 1969 to 2010. We use the dataset developed by Ruhm (2000), Tanaka (2005), and Shim (2015), and extend it with data from various international institutions. Our outcome indicators (D.V) are five age-specific child mortality rates (i.e., infant, perinatal, neonatal, post-neonatal, and child deaths). Our policy indicators include "job-protected paid leave" and "other leave" which is unpaid or non-job protected leave benefits. Control for confounding variables include: (1) real GDP per capita; (2) total expenditures on healthcare as percent of GDP; (3) share of the population covered by health insurance (public and primary private coverage); (4) number of kidney dialysis patients per 100,000 population; (5) total fertility rates; and (6) female employment rates. In addition, we estimate the effects of family leave policy on mortality rates while controlling for three health-related indicators, including (7) low birth weight (less than 2,500 grams); (8) immunization rates for measles by age 1; and (9) immunization rates for DPT by age 1. Lastly, we additionally control for three types of public social welfare expenditures on families and children, such as (10) family cash allowances; (11) maternity and parental leave; and (12) family services. Our study concludes with some of the research limitations and policy implications.

1:30 | LaKeita Burns | Independent Research Project

Modern Day Slavery: Human Sex Trafficking in the United States

Joyce Shim

Human sex trafficking, despite its many facades, is modern day slavery. Research indicates that children constitute the most vulnerable group in the United States for becoming victims of sex trafficking, and approximately 70 percent of women in prostitution were introduced into the commercial sex industry as minors. Children are our future. This is why it is imperative for children to receive proper education, protection, and nourishment. The average age at which children are being lured into commercial sexual exploitation is between 11 and 14, although some are as young as five years old. Experts are now referring to the sex trafficking of U.S. children and youths as *domestic minor sex trafficking* or DMST. Crimes against children are heinous and immediately threaten the familial ties desperately needed for proper development on a domestic and global level. This presentation will offer policy recommendations that follow a path similar to that of the Swedish model.

1:30 | Anastasia Zacour

Food FRNdzy

MaDonna Thelen

Partnering with the Food Recovery Network, this community based research presentation will address the realities of hunger, food waste and food deserts in the Chicago area. This research project has attempted to establish collaboration between Dominican University and the Food Recovery Network.

Parmer Atrium (URSCI Oral Presentations)

9:30 a.m.

Apparel Design & Merchandising

Dominican University Senior Apparel Collections

Six examples are on display in the Parmer Atrium throughout the day

Senior collections are investigations in design concepts. Students experiment with the breadth and depth of their inspiration and take the concept beyond the immediate and concrete. They document their design process and validate the construction techniques used to implement their ideas. In Senior Collection, students develop and articulate their personal design theory and voice.

Students present their collections to a panel of industry professionals. Garments are juried using five criteria: 1) concept viability, 2) creative inspiration, 3) design process, 4) professional workmanship, and 5) ability to articulate design philosophy.

Senior collections were displayed in live gallery runway exhibitions in the Lund Auditorium on April 2 and 3, 2016. Seniors participating in the runway exhibition are listed here, along with the title of their collection. McKinley Johnson, Apparel Design and Merchandising, mentored all of the senior apparel designers.

Dana Bitto

Demimonde

Franshon Jackson

Timeless Elegance

Dulce Santillan

Zr-o

Maegan Schmidt

Flaws in Bloom

Yvette Velazquez

Autorretrato-Self Portrait

Hailey Washington

Interruption

Focus on Art Slide Show

Dominican University Annual Juried Student Exhibition

Each year, Dominican University showcases the extraordinary artistic talent of its student body by hosting an Annual Juried Student Exhibition. This annual group show gives students the opportunity to have their artwork shown in the O'Connor Art Gallery and compete for cash prizes. Held each spring semester, it is open to all Dominican students regardless of major, and students may submit up to five works in any medium completed within the last year. After the submission deadline, Dominican University art department faculty select certain works for inclusion in the show, choosing works based on a combination of aesthetic and conceptual merit. After this initial selection, an outside guest juror awards prizes in different categories such as Best in Show, Best Color Photograph and Best Sculpture.

Because the guest curator is usually a prominent local curator, critic or art dealer, the Annual Juried Student Exhibition is a unique opportunity for students to have their work judged by an established and seasoned art world professional. Finally, each Annual Juried Student Exhibition kicks off with an opening night reception, which serves as a celebration of Dominican students' continued excellence in visual art. This year, the 2016 Annual Juried Student Exhibition Awards ceremony took place on Wednesday, March 16 in the O'Connor Art Gallery. The guest juror / curator was Jessica Cochran, a curatorial fellow with the Gaylord and Dorothy Donnelley Foundation and lecturer at the School of the Art Institute of Chicago. Ms. Cochran, who received her BA in Art History from Dominican University in 2005, will have upcoming exhibitions that include the Roman Susan (Chicago), the McCormick Gallery (Chicago), the Center for the Book (New York) and the Hyde Park Art Center (Chicago).

The names of the award winners accompany the Focus on Art Slide Show, which takes place in the Parmer Atrium.

Best Black & White Photograph & Best of Show Alancia Lane

Best Painting Jessica Perez

Best Drawing Melanie Tassone

Best Color Photograph Monica Rodriguez

Best Typography Alaina Kornfeld

Best Sculpture Alyssa Kulinski

Best Ceramic Nancy Ramirez

Best Use of Materials Kelsey Wilcoxon

Dean's Purchase Prize Darisha Heavens

Honorary Mention Elle Lehmann

Honorary Mention Patrick Owoc

Honorary Mention Maria Tovar

9:30 a.m.

Psychology

Melissa Gonzalez and Sarah Udzielak

What Makes Us Laugh: Does Target Gender and Type of Joke Matter?

Tina Ritzler

Previous research has demonstrated that there is an effect among sexist jokes and humor. It has been shown that men find sexist jokes about women significantly funnier, and that women find sexist jokes significantly less funny. In the interest of studying the effects of both sexism and gender on humor, a study was conducted using a questionnaire containing ten sexist/non-sexist jokes about men and women to assess if either sexist or non-sexist jokes with male or females as targets were perceived as funny by 15 female students at a university. In accordance with previous studies, we found a significant effect of the gender of the target of the joke on perceived humor, however, no effect was found between sexist jokes and humor, and no interaction between target gender and sexist jokes on humor was found. This would imply that women tend to find jokes about males funnier than jokes about females.

Rafael Cruz, Brigitte Espin and Sylwiak Gajdek

Saving the Best for Last

Tina Ritzler

Previous research has shown that when people are explicitly aware that an event they partake in will be their last one, levels of enjoyment, or desirability, will increase (Diener, Wirtz, & Oishi, 2001; Kurtz, 2008; O'Brien & Ellsworth, 2012). The purpose of this study was to replicate the findings of O'Brien and Ellsworth (2012) where participants in the "last" condition rated their enjoyment of their final chocolate, and for the experience as a whole, higher than participants in the "next" or "nothing said" conditions. We gathered data from 45 students at Dominican University. Participants were randomly assigned to one of three conditions and data was collected interview style. Contrary to past research, we failed to find any significant findings. Future research should have a larger sample size, multi-item enjoyment scale rather than single-item, and avoid contamination effects such as noise, which could have lead me to making a type 2 error.

Grissel Blackmon | Independent Research Project

Sexual Embarrassment Changes throughout Time

Tracy Caldwell

This exploratory investigation was meant to launch some ideas on the probable reasons for what causes sexual embarrassment. Archival research was done using Dan Savage's "Savage Love" column, a regular syndicated column in which the author addresses people's questions, thoughts and concerns about love and sex in romantic and casual contexts. Two time periods were investigated: February 1999 through February 2000 and February 2014 through February 2015 to observe if causes of sexual embarrassment had changed within a 15 year period of time. Each time period contained about 168 columns/letters addressed to Dan Savage. Results revealed a 24% increase in embarrassment in the time period of February 2014 through February 2015 than February 1999 through February 2000. Three common themes emerged as to what caused sexual embarrassment among submitters such as 1) fetishes, 2) sexual behavior that questioned ethics and 3) body images/body failures, with more people being embarrassed in those areas in 2014-2015, than in 1999-2000.

Mairead McKenna | Independent Research Project

The Relation Between Gender and Race on Ratings of Perceived Safety on Campus

Tracy Caldwell

Past research has unveiled the complexity of perceived safety as a variable, defining it with a broad range of variables, such as perceived fear of crime, anxiety, and risk perception (Culbertson, Vik, and Kooiman, 2001). Perceptions of safety have been found to differ according to gender: it has been consistently shown that women feel less safe comparatively to men. Race, however, has been absent in the discourse. The goal of the present study is to assess individuals' perceived safety on Dominican University's campus and to investigate whether these perceptions are influenced by gender identity, race, or ethnicity. If there are gender-, race-, or ethnicity-related differences in perceptions of safety, I will test the extent to which they are explained by differences in perceived predictability of others'

behavior. Participants will complete an online questionnaire designed to assess predictability of others' behavior, a questionnaire measuring perceived safety at night in 17 locations on Dominican University's campus, and a demographics questionnaire. It is predicted that individuals whose gender identity is more feminine will feel less safe than those who identify as masculine, and that people of color will feel less safe than white individuals. The goal is to begin to understand who feels safe, where, and why, with the hopes of addressing safety concerns on Dominican University's campus.

Natalie Mirek, Emily Lapinski, John Mysz, and William Hejna | Class Project

Change Blindness

Tracy Caldwell

Previous research has found that individuals are not attentive to not only their surroundings but also their interactions with other individuals. This intriguing phenomenon was called change blindness. We conducted an experiment to test this phenomenon. In our experiment we used two pairs of researchers, a male and female pair. During the study, one of the members of the pair would switch out during an interaction with a participant. The switch occurred when the first person of the pair "forgot" the survey packet for an image priming study. It was found that for the male experimenters, participants noticed the switch 50% of the time, whereas for female experimenters, the majority of participants failed to notice the switch.

Jacqueline Lara, Whitney Adams, Lissette Martinez, and Sara E. Napp | Class Project

Effort as a Predictor of Academic Achievement

Kathleen O'Connor

American school systems and researchers have striven to pinpoint specific traits that most influence students' levels of academic achievement. If properly identified, these key traits could lead to a more promising future and unlock each student's full potential. This study was conducted to understand what factors best predicted academic achievement in Dominican University students. Students were measured on the characteristics of grit, effort, and self-transcendence. We administered a self-report survey electronically to current Dominican University students, via-email or in-person. After analysis of the data, our results were surprising. We found a significant, positive, but weak correlation between effort and academic achievement ($r=.190$, $p=.000$). A significant, positive, and moderate correlation between effort and self-transcendence ($r=.387$, $p=.000$). We found no correlation with our third variable of grit and academic achievement ($r=.133$, $p=.518$).

Business

David Ciecko and Samantha Lamas | Class Project

Using R to Analyze the December Effect in the Stock Market

Anne Drougas

This poster presentation highlights what a data analytic software tool, called "R", can do to help unravel the mysteries around "big data" within industries. Using "R" and its data mining capacities, this project attempts to examine the scope and direction of the January Effect within the retail industry. The January effect is a general increase in stock prices during the month of January. This rally is generally attributed to an increase in buying, which follows the drop in price that typically happens in December when investors, seeking to create tax losses to offset capital gains, prompt a sell-off. Preliminary conclusions suggest that the January Effect is statistically significant for firms within the retail industry.

10:30 a.m.

Biology

Dalal Abuagel, Alvaro Donayre, Catherine Conte, Angelica Alejandres

The Fish Fraud Crisis

Irina Calin-Jageman

There has been recent controversy over the credibility of fish labeling. According to a study performed by Oceana in 2013, approximately 32% of fish in the Chicago land area have been mislabeled. This experiment will test the legitimacy of tuna and red snapper fish that have been purchased from local seafood shops. DNA was extracted from the fish samples, and then a portion of the CO-1 gene was amplified using PCR. Gel electrophoresis will be performed on the samples to cut the amplicon located on the 700 base pair band. This will be sent in for DNA sequencing at the ACGT laboratory. The original sequence will then be compared to the expected sequence from the NCBI database so the genomic identity of the fish could be determined.

Jency Patel, Marissa Rivota, Fernando Rodriguez, and Carly Spears

Fish or Foe?

Irina Calin-Jageman

In recent years, public attention has been gained for mislabeled and fraudulent seafood marketing, often for economic profit. A study conducted by Oceana, the largest international ocean conservation and advocacy organization, revealed that 32% of the fish tested in Chicago is mislabeled. The goal of our experiment is to further investigate fish fraud in the local area. Fish meat samples were collected from various local markets like Jewel, Tony's Finer Foods and Rio-Valley Market. The samples included: catfish, orange roughy, cod, alaskan cod, ocean perch, tilapia, bassa swai, and sole. DNA from each

sample of fish meat was extracted and purified. Portions of the CO1 gene were amplified using specific primers via Polymerase Chain Reaction (PCR). Gel electrophoresis was performed to isolate and purify the amplicon. The DNA was sent to ACGT for sequencing. The results were compared with known fish sequences, to determine if the labeling was correct.

Madeline McMullen, Ewelina Dwojak, Sara Hausl, and Marian Chytry

Sushi Fish Identification

Irina Calin-Jageman

In a recent study by Oceana, which tested fish from various locations within Illinois, 32% of these fish were found to be mislabeled. The most common fraudulent fish were tuna, cod, and red snapper. This mislabeling mainly takes place in sushi venues, but can also occur in restaurants or food distribution corporations. Our project focuses on analyzing fish species in sushi restaurants in the greater Chicago-land area. Using raw red snapper, hamachi, seabass, bluefin tuna, and mackerel, we isolated the genomic fish DNA, performed a PCR reaction and electrophoresis to amplify part of the CO1 mitochondrial gene. The amplification product will be sent in for sequencing and then compared against known sequences for each specific fish. Bioinformatics analysis will be used to determine if the fish were labeled accurately.

Magdalena Rozko, Patrycja Matel, Viktoria Makdesi-Elies, Gabriel Moreno

Fish Identification Fraud

Irina Calin-Jageman

Fish fraud is of concern in the food industry today. In certain circumstances, people are purchasing fish that, in reality, are mislabeled. Within the fish industry, there are many steps from catching the fish to the actual distribution of it. During this process, mislabeling of fish can occur. According to "Oceana Study Reveals Seafood Fraud Nationwide," the most common fish that are mislabeled are: red snapper for a Caribbean red snapper, a crimson snapper, a spotted rose snapper, Pacific Ocean perch and more. White tuna was found to often be mislabeled as escolar, while gruper fish for pangasius, king mackarel, and whitefin weakfish. Labeled Atlantic cod turned out to be Pacific cod and white hake, and Chilean sea bass for Antarctic toothfish (Oceana 2013). Our project investigates various fish from different locations in the Chicago-land area. The fish chosen for our experiment include: tilapia, herring, cod, catfish, salmon, rainbow trout and perch. The first step includes extracting DNA. Next, the DNA is amplified through PCR using the COI mitochondrial gene, and finally the DNA is sequenced. In the conclusion of the experiment, we will identify if the particular fish samples chosen were labeled accurately by comparing the known DNA sequence to our experimental findings.

Mason Solbrig, Monica Tamrazi, Catherine Trempe, and Nataly Velasquez

Fraudulent Fish?

Irina Calin-Jageman

In American supermarkets and restaurants, a problem has arisen due to the intentional or unintentional mislabeling of fish species. Often, cheaper species of fish are labeled as more expensive fish, such as red snapper and tuna. This can create financial, health, and/or safety issues for the consumer. We visited

local markets/restaurants and obtained fresh samples of fish, including: catfish, basa, red snapper, white tuna, salmon, yellowtail, trout, tilapia, and tuna. The goal is to find out if the stores/restaurants we visited are using mislabeled fish. We extracted the DNA from fresh fish samples, used PCR to amplify the CO1 gene of those specimens' DNA, ran the cDNA obtained through Gel Electrophoresis, and cut out the resulting bands to be sent out for sequencing. After sequencing, we analyzed the fish DNA obtained and compared those results to the known DNA from all of our tested fish species.

Adrian Paszek, Siera Smith, and Catherine Koziol

Fish Barcoding in the Chicago Area Food Markets

Irina Calin-Jageman

The food industry in the United States is experiencing an increased frequency of the sale of both intentionally and unintentionally mislabeled fish. A sample study done by Oceana in 2012 reported that roughly 33% of fish have been mislabeled and therefore sold fraudulently. The study found that the most commonly mislabeled fish were snapper (87% mislabeled) and tuna (59% mislabeled). An estimated 32% of fish sold in Chicago were mislabeled; all sushi restaurants tested had at least one mislabeled fish. We are determining whether or not locally purchased fish (suburban Chicago) are being sold as advertised according to their species. As done in the Oceana study, we are using DNA barcoding to evaluate our samples. We collected fish samples (salmon, tilapia, mahi-mahi, solefish, and hamachi yellowtail) from Mariano's, Delia's Kitchen, Katy's Dumpling House, Umami Sushi, and E Wok Cafe. To determine the exact species of a fish sample, we will extract DNA and PCR amplify a small region of the cytochrome c oxidase I gene. Following sequencing (performed by an outside vendor, ATCG, Inc.) of this DNA region, we will compare the DNA sequence obtained to other known species of fish from the NCBI sequence repository. Bioinformatics analysis will inform authenticity of the samples tested.

Trevor Slonek, Alyssa Domico, and Jaranisse Perez

Casting for Fish Fraud

Irina Calin-Jageman

According to a fish DNA study conducted by Oceana from 2010-2012, roughly a third of the samples tested were mislabeled as a different species of fish. Although it's unknown if the mislabeling is intentional, we aim to test samples from our local area that will either support or refute this claim. Fish samples were collected from three locations in the Chicagoland area. These samples include orange roughy and Pacific cod from Hagen's Fish Market, red snapper and tuna from Sushi House, and Scottish salmon, cod, and red snapper from Valli Produce. DNA was extracted, isolated, and purified from each sample by homogenizing and lysing the cells to elute DNA. PCR was performed with specific primers for cytochrome c oxidase subunit 1 gene. Electrophoresis was performed to isolate and purify a 700 bp amplicon which was sequenced. Obtained sequences were then compared to known sequences to identify the species.

Yumna Akhlaq, Nicole Heiberger, Amanda Bell, and Angella Wojnowski

Questioning the Local Fish Market

Irina Calin-Jageman

Oceana, an organization interested in conserving the earth's ocean biodiversity, reported in February 2013 that fish fraud is increasingly prevalent. Oceana reports that cod and salmon are among the most commonly mislabeled fish. Mislabeled fish is distributed to grocery stores and restaurants, which is not only a financial concern but a health concern as well. Our goal is to determine whether the fish identity provided by local businesses is honest. We isolated and amplified the CO1 gene from our fish samples-- fluke, surf clam, cod, salmon, tilapia, catfish, swai and pollock-- by the polymerase chain reaction (PCR). The samples were then run on gels using electrophoresis. The DNA was isolated and purified before sequencing. The DNA samples were compared to known fish species' DNA. We hope to discover whether the fish sold to us was properly labeled.

Sheila Mullen, Briana Fanning, Chrisine Bassig Santos, Elizabeth Galvan, Emilio Benbassat, Mariana Reyes, Shir Pruthi

Cystic Fibrosis and the CFTR Gene

Keith Alvares

Cystic fibrosis is the most common genetic disorder in the United States. It is an autosomal recessive disorder that causes damage to the lung and digestive system. It is characterized by a persistent cough with thick mucus, wheezing, repeated lung infections. Mutations in the CFTR (Cystic fibrosis transmembrane conductance regulator) gene have been identified as the cause of CF. The CFTR is an ATP-gated anion transmembrane protein responsible for the transport of chloride and other ions into and out of the cell. When this protein is mutated, it does not fold and function properly. Chloride, other ions, and water can therefore not flow out of the cell when the protein is mutated, and mucus builds up in the lungs. We will be presenting on the mutations in the CFTR gene as well as current research for treatment of cystic fibrosis.

Araceli Lazcano, Kaity Bobadilla, Amelia Geisler, Amy Lei, Christopher Vazquez, Jennifer Pedigo

Prognostic Value of Electrophysiological Testing of Wolff-Parkinson-White Syndrome in Pediatric Patients

Keith Alvares

Wolff-Parkinson-White (WPW) syndrome is a disorder of the heart in which there is an additional electrical pathway between the atria and the ventricles. This complication causes the ventricle of the heart to beat rapidly, otherwise known as tachycardia. An over-excited ventricle can cause further complications such as ventricular fibrillation and even sudden death. The extra electrical pathway occurs as a result of gene mutations and is present at birth. One way to assess the antegrade conduction of the electrical pathway is via electrophysiological studies, also known as EPS. By administering certain testing, the extra electrical pathway can be pinpointed. There is an aim to determine the correlation between the results of noninvasive testing and invasive EPS testing in pediatric patients. WPW will be explored in depth by investigating: symptomology, causes, complications, testing and diagnosis, and alternative treatments.

Bukola Olu-Ajeigbe, Chanel Arnold-Murray, Diamond Powell, Erika Redden, Courtney Young

Placenta Growth Factor in Sickle Cell Disease: Association with Hemolysis and Inflammation

Keith Alvares

A review on Placenta Growth Factor in sickle cell disease. The placenta is the cornerstone of fetal nutrition and growth. The placenta interconnects two separate circulations; maternal and fetal. It allows antibodies to be transferred from the mother to the fetus, which gives them immunity for up to three months after birth, and in utero also acts as a barrier to protect the fetus from certain *xenobiotics in maternal blood. Placenta growth factor (P1GF) is an essential protein found in the placenta that regulates angiogenesis and vasculogenesis during embryogenesis. Angiogenesis and vasculogenesis refer to the formation of new blood cells and new endothelial cells from pre-existing vessels and mesodermal precursors. There has been increasing correlation between the level of P1GF present and the predisposition to pathological diseases including sickle cell disease.

John Flach, Fady Charbel, Magali Rebollo, Hector Ramirez, Brice Jones, and Sandeep Amladi

Huntington's Disease

Keith Alvares

Huntington's Disease (HD) is a neurodegenerative disease that causes cell dysfunction. This leads to a cognitive decline in those affected. The mutated gene in humans is IT15, which is located on chromosome four. HD is an autosomal dominant disorder, therefore any children of carriers are at risk. Unfortunately, the disease typically begins to show symptoms around middle age, very often after the affected person has had children. The IT15 gene codes for huntingtin (Htt), which is the protein affected by HD. An individual affected with HD has mutated Htt protein (mHtt) with expanded CAG sequences in the N-terminus of the protein. As research is ongoing, there is no current cure for the disease, although symptoms can be managed. In fact, no clinical phase 3 trial has yielded a successful drug to slow or reverse the progression of HD. Current research focuses include mitochondrial dysfunction, protein interactions, and reducing expression of mHtt.

Joseph Lis and Dominick Romito

Small World Project: The Isolation, Analysis, and Identification of Antibiotic Producing Bacteria from Dominican University Campus

Scott Kreher

Antibiotics are naturally-occurring molecules that give the synthesizing organism an advantage in its environment by slowing the growth of or killing neighboring microorganisms. Many bacteria living in soil produce antibiotic molecules that affect other bacteria. Isolation of these antibiotic-producing bacteria can be useful to humans to use as a defense mechanism for pathogenic organisms. Two individual soil samples were taken behind the Marketing and Communications building on the Dominican University campus, and serial dilutions were grown on 10% trypticase soy agar (TSA 10%) medium and on potato

dextrose agar (PDA). Colonies were isolated to make 2 master plates and tested against seven ESKAPE pathogen bacteria (relatives). We identified 15 antibiotic producing bacteria, active against 4 tester strains. The identified antibiotic-producing bacteria were sent for DNA sequencing and results were posted to an online database of results from schools from multiple countries.

Karolina Kir and Patrycja Matel |Independent Research Project

Complex and Non-Redundant Signals from Individual Odor Receptors that Underlie Chemotaxis Behavior in Drosophila Melanogaster Larvae

Scott Kreher

The rules by which odor receptors encode odors and allow behavior are still largely unexplored. Although large data sets of electrophysiological responses of receptors to odors have been generated, few hypotheses have been tested with behavioral assays. We use a data set on odor responses of Drosophila larval odor receptors coupled with chemotaxis behavioral assays to examine rules of odor coding. In previous work, we analyzed the coding of attractant odors and the roles of specific odor receptors. In our current project, we are analyzing repellent odors. We have found four odors that act as bona fide repellents, but only at high concentrations. Interestingly, when these repellent odors are mixed with attractant odors, the repellent effect is dominant, either fully or partially. We have examined the repellent effect in a variety of behavioral assays, and the results are robust. We are finally examining mutants of specific odor receptors to determine their role in odor coding.

11:30 a.m.

Chemistry

Rosalyn Wyse and Kristyn Ramsey

Ozonolysis of Cholesterol

Daniela Andrei

Ozonolysis of cholesterol, O₃, is an oxidative cleavage process in which protons are removed resulting in the formation of oxysterols. Exposure to smog in the atmosphere allows O₃ to enter the respiratory system where it reacts with unsaturated lipids, namely cholesterol found in the lining of the lungs. Specifically, when cholesterol and O₃ are combined with solvents containing water, cholesterol is oxidized at the carbon-carbon double bond to form oxysterols. Oxysterols are oxygenated derivatives of cholesterol. They have negative side effects such as cytotoxicity, cellular apoptosis, and the alteration of membrane properties. Protein function is affected by covalent bonding to ozone which occurs during the electrophilic lipid oxidation process. Our literature-based research poster will discuss the cellular effects as well as health implications from several diseases related to the ozonolysis of cholesterol.

Yumna Akhlaq and Amanda Bell

Characteristics of Dopamine

Tarab Ahmad

Dopamine is a catecholamine neurotransmitter. It plays an integral role in brain functions such as behavior, voluntary movement, memory, and sleep cycle. Dopamine's molecular structure makes it incapable of crossing the blood-brain barrier. Numerous nervous system diseases are related to dopamine system and the treatments for these diseases mainly function to modify the effects of dopamine. However, in recent experiments it is hypothesized that a dopamine and hydrochloride mixture will result in an aqueous solution enabling dopamine to pass the blood-brain barrier and possibly decrease the negative effects dopamine has on the nervous system. Due to the instability of dopamine in aqueous solution, all the experiments have to be conducted within 12 hours. It is interesting that although dopamine is so essential to our brain and nervous system functions there is so much mystery to this particular neurotransmitter. The close relation of dopamine with vital brain functions and deadly nervous system diseases makes it a fascinating neurotransmitter for further research.

Anna Matyszewski, Kamila Babiarz, Adela Armoush, and Suraya Abruzzi

Trans Fat: The Hydrogenation of Vegetable Oil

Tarab Ahmad

The purpose of hydrogenation of vegetable oil is to allow a longer shelf life, which can hold 15% to 20% of trans fat at room temperature. Hydrogenation is a process in which a chemical reaction occurs between hydrogen in the presence of a catalyst. As the degree of hydrogenation increases, the amount of saturated fats increased and the polyunsaturated fats decrease. The product of this reaction results in the naturally occurring "cis" isomer to be altered to a "trans" double bond instead. This new chemical formula is linearly shaped to accommodate the "trans" structure, which is commonly named "Trans-Fat." These trans-fats are known to raise LDL (Bad) cholesterol levels and put consumers at a higher risk for diabetes and heart disease.

Areeb Ahmed, Adrian Barrera, Cody Schuster, and Christian Youssef

Environmental and Economical Advantages of Supercritical Carbon Dioxide

Tarab Ahmad

Supercritical carbon dioxide (SCCO₂) can be used for a variety of purposes. For instance, banknotes that are put into circulation accumulate layers of sebum and other impurities that over time, cause the banknote to be misfit to remain in circulation. These banknotes are then thrown away, causing the expenditure of money to create new, more crisp notes. SCCO₂ has been proven to effectively remove the layers of sebum (as well as other impurities as described by our first journal) such that the banknote is still usable with all of its intricate security measures still retained. SCCO₂ can also be used to extract caffeine from coffee beans. Although the second journal mentioned that the efficiency of SCCO₂ as a solvent to extract coffee was as low as 10%, it adds that its efficacy can easily be increased with a different apparatus.

Brenda Silva, Magali Rebolledo, and Brandon Guerrero

The Connection between Carbonyls and Tobacco

Tarab Ahmad

Carbonyls and aldehydes are two harmful organic compounds found in tobacco. Seven of the carbonyls found in tobacco are formaldehyde, acetaldehyde, acrolein, acetone, propionaldehyde, crotonaldehyde, and methyl ethyl ketone. Inhaling carbonyls can cause effects to the body such as irritation and pulmonary edema. However, the long-term effects would involve cancer and respiratory congestion. These dangerous carbonyls and aldehydes in cigarette smoke are severely conventional in tobacco products. Carbonyls and aldehydes have a low molecular weight in which they are difficult to analyze due to the high volatile and water solubility. The carbonyl was conducted in an experiment to see if they are collected through the mainstream smoke. The study approaches to capture the carbonyls and to derivative carbonyl compounds. This is done by requiring long column separation times and limited selectivity that follows

Caleb Navarro and Joseph Lis

Synthesis of Fat Burners(Thermogenics)

Tarab Ahmad

This research project will look at the effectiveness of synthesizing thermogenics. The main thermogenic used that will be studied is Yohimbine ($C_{21}H_{26}N_2O_3$). The formal synthesis was published in 1958 by Eugene E. van Tamelen. The main source of the Yohimbine compound is from extract from the Yohimbe tree bark, which mainly comes from Central Africa. The first successful artificial synthesis of the compound was a 23 step reaction. We will study how the compound is synthesized and how it interacts with the body as a dietary supplement. Although we will mainly focus on the dietary aspects of Yohimbine, the extract has other uses, such as an anti-sedative for dogs, as well potential use as a treatment for erectile dysfunction.

Cassandra Rivera, Kurt Anderson, Obinna Okolocha, and Gabriel Moreno

Synthesis of Brominated 2-Phenitidine Derivatives as Valuable Inhibitors of Cholinesterases for the Treatment of Alzheimer's Disease

Tarab Ahmad

This presentation describes the synthesis of Brominated 2-Phenitidine derivatives as valuable inhibitors of Cholinesterases. By performing this synthesis, it may potentially lead to the treatment of Alzheimer's disease. The first step is a reaction of 2-Phenitidine with benzenesulfonyl choride in an aqueous media yielding N-(2-ethoxyphenyl) benzenesulfonamide. This was then subjected to bromination with bromine in the presence of glacial acetic acid to give N-(4,5-dibromo-2-ethoxyphenyl) benzenesulfonamide. Secondly, the product is treated with alkyl halides in the presence of lithium hydride to produce new derivatives which are valuable inhibitors of butyrylocholinesterase and acetylcholinesterase. Butyrylocholinesterase activity progressively increases in patients with Alzheimer's Disease. By acting as an inhibitor to butyrylcholinesterase, brominated 2-phenitidine shows potential in ability to slow Alzheimer's progression.

Dalal Abuagel, Claudia Radek, Mosam Amin and Alexander Diana | Class Project

HIV-1 Protease Inhibitors for the Treatment of HIV/ Aids

Tarab Ahmad

The HIV virus that causes AIDS, has produced a serious epidemic that has become one of the most solemn health and developmental challenges the world is facing today. According to the Kaiser Family Research Program, as of 2015, approximately 36.9 million people are diagnosed with HIV and tens of millions of people have died of AIDS-related causes since the beginning of the epidemic. Research has shown the HIV- 1 protease inhibitors continue to play an imperative role in the treatment of HIV/ AIDS, specifically by transforming the deadly ailment into a more manageable chronic infection. Protease inhibitors are metabolized by enzymes in the liver and can interact with other medications by speeding up or slowing down their processing in the body. In this project, we aim to outline the current drug design and medicinal efforts toward the development of the next generation protease inhibitors that have led to HIV-related disease progression and prolonged mortality.

Elizabeth Lattyak, Katie Trempe, Sweta Patel, and Michelle Muntaner

Spectrometric Visualization in the Central Nervous System

Tarab Ahmad

The use of mass spectrometry can be used to detect many compounds within organic chemistry, and can also be used to detect neurotransmitters in tissues of organisms. The study examines the dispersal and location of the neurotransmitter acetylcholine (ACh) throughout the tissues in the central nervous system (CNS). In order to obtain the acetylcholine concentrations and location in the tissues, the species brains and spinal cords were removed, frozen, and tested. The species involved in the analysis were rats and mice. The results show that the most abundant peak of acetylcholine was found to be at a higher level in the cortex and brainstem, whereas lower levels of acetylcholine were found in the olfactory bulb and the cerebellum (Ye, Wang, Greer, Strupat, and Li, 2013). The results also show that with the use of ion-mobility spectrometry (IMS), the location of the acetylcholine (ACh) in the tissues of the central nervous system were able to be detected (Sugiura, Zaima, Setou, Ito, and Yao, 2012).

Fady Charbel, Tony Cornelious, Francesca Millare, and Magdalena Rozko

Accelerated Reaction Rates at the Liquid-Liquid Interface

Tarab Ahmad

Narayan, et al. described chemical reactions performed “on water” whereby one or more insoluble reactants are stirred vigorously in aqueous suspension. Reactions performed “on water” exhibited increased reaction rates (e.g. with azodicarboxylate additions to hydrocarbons) versus when performed neat or in organic solvents. Other potential advantages include ease of insoluble product separation and inherent safety due to efficient heat dissipation and water’s high specific heat. To explore this phenomenon, Manna et al. performed extensive kinetic analysis. They found that facets of the phenomenon critical to the increased reaction rates included: the presence of a distinct interface, reactant hydrophobicity, maximization of contact between reactants and water, and ease of hydrogen bonding between the reactants and their transition states with water molecules at the interface.

Jessica Johnson, John Flach, Kaiesha Lewis, and Melissa Marquez

A Comparison of Two Leading Oral Anti-Diabetic Medications

Tarab Ahmad

The following report is a comparison of two popular oral antidiabetic medications, metformin and sitagliptin. The report focuses on the chemical structures and most widely used synthesis processes for each, and examines a newer asymmetric synthesis process for sitagliptin that significantly reduces waste and could influence synthesis processes of other organic medications to be more environmentally friendly in the future. The report also provides background information on how the mechanisms of both metformin and sitagliptin in the body help treat diabetes mellitus in adults.

Leticia Perez and Catherine Koziol

Clonazepam: A Comparison of Different Syntheses and its Effects on the Body

Tarab Ahmad

Clonazepam is a medication often used to treat epilepsy and panic disorders. The commercial synthesis of clonazepam, which is the synthesis considered to be most efficient, is 2-(2-chloroacetamido)-5nitro-2'-chlorobenzophenone undergoing substitution with potassium iodide. Clonazepam could also be formed through the formation of a-(haloacetamido) benzophenone followed by alkylation of ammonia² or by condensing alpha-aminobenzophenone with glycine esters. Through research, it has already been proven that Clonazepam is not only an extremely important aid to the well-being of those who suffer from certain types of psychosis but also an urgently needed alternative schistosomicidal medication since clonazepam has similar effects on the parasite causing schistosomiasis as prasiquantel. In our presentation, we will focus on the commercial synthesis of clonazepam, compare it to its other alternative synthesis, and explore the effects of clonazepam on the body and on the parasite that causes schistosomiasis.

Rosario Hernandez and Amy Do

Chemical Analysis of Crude Oil Refinery Processes and the Effects on the Environment

Tarab Ahmad

In this study, the processes of crude oil refinery were analyzed from cradle to grave in order to understand the detrimental effects on the health of the environment, humans, and wildlife. Crude oil is a mixture of a numerous hydrocarbons; the major hydrocarbons commonly found in crude oil were categorized and researched accordingly. Many of these hydrocarbons pose a toxic threat and often enter the environment and pollute, not only the air and water, but the entirety of the ecosystem in its vicinity. Human exposure to these chemicals can negatively affect the central nervous system, lungs, liver, and kidneys. Health effects are not limited to peripheral neuropathy disorder and cancer. Because of the constant exposure of toxins due to fracking, drilling, inappropriate waste disposal of chemicals, and oil spills leaking, the environment is subject to a multitude of different effects such as earthquakes, extinction of species, and ground water contamination.

Ushma Patel, Athira Jacob, and Alexia Ortiz

Synthesis of Phthalimide based compounds to test potency as acetylcholinesterase inhibitors

Tarab Ahmad

Alzheimer's disease is a neurodegenerative alteration characterized by a low acetylcholine (ACh) activity in the hippocampus and cortex region of the brain. Acetylcholinesterase inhibitors such as donepezil are useful for increasing the duration of action of acetylcholine; hence, they improve the symptoms of Alzheimer's. In these studies, Phthalimide based compounds were synthesized to test their potency as acetylcholinesterase inhibitors in comparison to donepezil. One of the studies used twelve 2-(2-(4-Benzylpiperazin-1-yl)ethyl)isoindoline-1,3-dione derivatives and another study used five 2-(2-(4-(2-Oxo-2-phenylethyl)piperazin-1-yl) ethyl)Isoindoline-1,3-dione derivatives. The differences in the structures of these Phthalimide based derivatives were assessed using NMR. Next, they were tested using Ellman's test in both studies in order to assess anti-acetylcholinesterase effects. In each experiment, some derivatives were concluded to have a greater inhibitory potency than others. In the experiment using 2-(2-(4-(2-Oxo-2-phenylethyl)piperazin-1-yl) ethyl)Isoindoline-1,3-dione derivatives, it was noted that none of the derivatives showed higher potency than donepezil. In conclusion, all the derivatives tested in both of the studies could potentially function as acetylcholinesterase inhibitors, especially derivative 4a.

Dalal Abuagel, Adela Armoush, Tony Cornelious, Mayra Garibay, and Alison Gerard

The Relationship Between Iron Deficiency Anemia and Hemoglobin

Daniela Andrei

Iron deficiency is the single most prevalent nutritional deficiency worldwide. According to the Baylor College of Medicine, this deficiency accounts for anemia in 5% of American women and 2% of American men. Particularly, iron deficiency anemia is a form of anemia that is defined by the decrease of the total amount of hemoglobin or red blood cells due to lack of sufficient iron. This deficiency usually occurs from inadequate intake of iron, chronic blood loss, or a combination of the two. This poster will describe the biochemical basis of iron metabolism and iron deficiency anemia.

Angella Wojnowski, Kathy Smolecki and Siera Smith

Decellularization

Daniela Andrei

Immunosuppressant drugs are a category of drugs that suppress or reduce the effectiveness of the body's immune system. For this reason, they are prescribed to patients who have undergone a transplant surgery to ensure that the organ that they receive does not get rejected by the host body. Immunosuppressant drugs can be subcategorized into four groups by their effects on the body. The following are the subgroupings of immunosuppressant drugs: Cyclosporine (inhibits T-cell activation), Azathioprine (disrupts synthesis of DNA, RNA, and cell division), Monoclonal antibodies (inhibits interleukin-2 binding), and Corticosteroids (suppress the inflammation post transplant procedure). The most common transplant performed is a renal transplant. Patients of renal transplants are most commonly prescribed cyclosporines and corticoids, along with other medications to help reduce the

possibility of infection while the body is weakened. This poster will explore immunosuppressant drugs in general, and will further analyze the prescriptions of a post-renal transplant patient.

Courtney Young, Erica Minor, and Marna Rudd

Naphthalene

Daniela Andrei

Naphthalene is a volatile, white crystalline solid with a polycyclic hydrocarbon structure. It is primarily derived from coal tar by successive distillations with optional crystallization for higher purity.

Naphthalene has a strong odor and is commonly used in moth repellents and making plasticizers for plastic. Its natural form is solid, however it can turn into a toxic gas which kills insects and can repel other animals. Mammals absorb naphthalene through inhalation, ingestion, and dermal contact. Most of its metabolites can be removed by the kidneys, but ingestion and prolonged inhalation have been linked to hemolytic anemia and can also cause damage to the eyes, liver, and neurological system. The elements of hemolytic anemia can be found in urine. Naphthalene is also found in cigarettes and is anticipated to be a human carcinogen that may be linked to an increased risk of laryngeal cancer. Annually over 5,000 people are poisoned by naphthalene in mothballs. Our poster will explore the chemistry, uses, and health effects of naphthalene.

Brianda Aguilar, Yezeli Montenegro, and Crystal Castillo

Nicotine

Daniela Andrei

Nicotine, the primary alkaloid in tobacco products binds stereo-selectively to nicotinic-cholinergic receptors on autonomic ganglia, the adrenal medulla, and neuromuscular junctions in the brain. This poster will discuss the intravenous administration of nicotine. It causes the release of acetylcholine, norepinephrine, dopamine, and serotonin. As a result, peripheral vasoconstriction, tachycardia, and elevated blood pressure may be observed with nicotine intake. This agent may also stimulate the chemoreceptor trigger zone, thereby inducing nausea and vomiting. Nicotine is a highly addictive substance, inhalers and patches are used to treat smoking withdrawal syndrome. Nicotine is therefore classified as a stimulant of autonomic ganglia. This poster is based on literature research.

Emilia Pilch, Catherine Napierala, Jaranisse Perez, and Alyssandra Segoviano

Vitamin K

Daniela Andrei

Vitamin K 1 (Phylloquinone) is the major form of vitamin K absorbed in small intestine. Vitamin K is essential due to its antihemorrhagic and prothrombogenic activity, yet there is a lack of data showing what the average recommended intake is. Phylloquinone is not synthesized by humans and therefore it needs to be obtained from dietary sources such as green, leafy vegetables. Our poster is based on various literature studies exploring bioavailability, absorption, disposition, and metabolism of a fat-soluble vitamin K. The poster will discuss how crucial further research of vitamin K is. Vitamin K deficiency may cause Vitamin K Bleeding Disorder in many neonates, which may result in death. Some studies also suggest that it might be linked to common disorders such as osteoporosis and

atherosclerosis. A better understanding of Phylloquinone's behavior may lead to prevention of these disorders.

Joseph Korziuk, Brandon Guerrero, Jeannette Kakareko, Kaitlyn Kanakes, and Christian Lardi

Alcohol Dehydrogenase Polymorphisms and the Link to Alcoholism

Daniela Andrei

Many individuals consume alcohol on a daily basis which to some extent, can be beneficial to their health. However, some people are more susceptible to the effects of alcohol than others due to their genes. Alcohol metabolism is a two-step process. Ethanol is first oxidized to acetaldehyde by alcohol dehydrogenases, which is then oxidized to acetate by aldehyde dehydrogenase. Through the processes of transcription and translation, DNA codes for various proteins in the form of enzymes. In the body, enzymes are responsible for breaking down alcohol consumed. The main enzymes that are involved in the metabolism of alcohol are alcohol dehydrogenase (ADH) and aldehyde dehydrogenase (ALDH) [2]. ADH is found on chromosome 4 and has seven variants: ADH1A, ADH1B, ADH1C, ADH4, ADH5, ADH6, ADH7. The alleles of these enzymes can cause a faster oxidation reaction of ethanol to acetaldehyde, as well as block the oxidation of acetaldehyde to acetate. The latter, results in an excess of acetaldehyde in the body. The effects of these polymorphisms factors into one's drinking levels and thus increasing one's risk of becoming alcohol dependent. Our literature-based research poster will discuss these polymorphisms and how they relate to alcoholism.

Kathryn Walter, Steven Farrell and Alexandra Anderson

Alprazolam

Daniela Andrei

Xanax, referred to in the more general term, alprazolam, is a widely used antidepressant that is short acting. It works by binding to a specific site in the CNS and increases the affinity of GABA to the receptor, increasing the frequency of chloride-channel opening events, leading to an increase in chloride ion conductance which finally causes the inhibition of action potentials and a decrease in neuronal excitability. The mixture of alprazolam and ethanol is marked by increased aggressiveness, liver toxicity, and decreased memory and psychomotor function. These effects pose an interesting study on the potential harmful interactions between ethanol and alprazolam. Due to alprazolam's 95% solubility in ethanol, when mixed, it can increase nervous system side effects quite extremely. This poster, based on literary references, will discuss the synergistic effects that alprazolam and alcohol have on each other as well as the organic chemistry behind the deadly combination.

Kristyn Ramsey, Emilia Pilch, Dana Pomroy, and Dominick Romito

The Use of Dendrimers for Targeted Drug Delivery in Cancer Patients

Daniela Andrei

The application of dendrimer technology for targeted drug delivery has seen an increase in advances for cancer treatment over the past few years. Traditionally, cancer treatment would include chemotherapy, which destroys cancer cells, as well as fully functional cells, which cause the patient unnecessary harm. Dendrimer technology allows for a drug to be directly delivered to the cancer cell, thus preventing

healthy cell death. Dendrimers, which are polymer macromolecules, achieve selective targeting through their architectural design, which allows them to bind only to designated receptors, something simple drugs cannot attain. Scientists synthesize dendrimers in a lab, which allows them to be altered and manipulated in order to create the desired binding design, thus allowing for cancer treatment applications across numerous body systems. Through a review of literature, we describe the mechanism by which dendrimers deliver drug therapy to cancer cells while exploring their design and the health implications they afford.

Luis Hernandez, Tim Isaacson, and Jose Muñoz

The Effects of Corticosteroids on Cancer Treatment

Daniela Andrei

Corticosteroids are a class of steroid-hormones that are produced in the adrenal cortex of vertebrates and that are involved in a wide range of physiological processes (including stress response, immune response, and regulation of inflammation). Corticosteroid drugs are useful in treating many conditions, ranging from brain tumors to skin diseases. Corticosteroids are frequently used in cancer patients for their analgesic properties. Several scholarly articles will be dissected in order to draw informed conclusions to accurately explain the relationship between corticosteroids and cancer treatment. Corticosteroids are appetite stimulants, so cancer treatment options that involve corticosteroids help provide patients with control over symptoms. For individuals with advanced cancers, corticosteroids are used to help increase appetite, increase strength (alleviate fatigue), suppress nausea, and reduce physical pain. The purpose of this poster presentation is to discuss the effects of corticosteroids during cancer treatment and assess the evidence for their use in cancer pain management.

Marian Chtry, Angelica Alejandres, Taylor Gladson, and Sylvia Karpio

Vitamin D

Daniela Andrei

In this poster presentation, studies of Vitamin D, a soluble vitamin that is obtained either from exposure to ultraviolet radiation from the sun or through dietary consumption, are presented in order to discuss the possible conditions that arise from Vitamin D deficiency. The articles used in this poster show that Vitamin D metabolites affect different cells such as liver cells and acute myeloid leukemia cells. This vitamin is essential; it has great influence on calcium homeostasis and plays a role in the regulation of cell differentiation and immunity. However, deficiency in Vitamin D is known to cause adverse effects in human beings. Vitamin D may be of interest in pathology because it has been linked with common disorders including cardiovascular problems, cancer, and autoimmune diseases. Understanding the importance of how Vitamin D enzymes interact with other cells can potentially aid in developing treatments for diseases that result from an inadequate amount of these enzymes.

Morganne Schmidt & Camden Knights | Independent Research Project

Plight of the Bees: Investigation of Heavy Metal Contaminants in Honey from the Midwest and Urban Chicago Area

Kathleen Schmidt-Nebril

There is little known as to why the world wide bee population is declining and with increased global industrialization and pollution, heavy metal prevalence in honey may provide some correlation. The purpose of the experiment was to determine heavy metal content in honey as a possible cause for the current bee decline. The four heavy metals analyzed were Chromium, Magnesium, Iron, and Zinc. The laboratory method of analysis used was AA-Atomic Absorption Spectroscopy with analysis of metals from the 0 to 5 ppm range. All honey samples collected were unfiltered, raw, unprocessed, and unheated and taken from the Midwest and the urban Chicagoland area. In addition Dominican University's Bee Hive Project also provided honey as a source for this study.

Amy Do | Independent Research Project

Quantitative Structure-Activity Relationships (QSAR) for Heterocyclic Amines: Physicochemical Factors Affecting Mutagenic Potency

Nicolas Winter

This study focused on predicting the mutagenic potency of a series of heterocyclic amines which are compounds formed during the cooking of protein, particularly fried beef. The predictive model was developed using quantitative structure-activity relationship (QSAR) methodology, a technique useful in medicinal chemistry which relates the physicochemical properties of molecules with their biological activity. Various molecular properties were computed using ab initio quantum chemical calculations. The extent to which different structural and chemical factors correlate with mutagenic potency was determined and used to develop a QSAR-based predictive model. A single-variable regression revealed molecular dipole to be the best predictor of mutagenic potency. A double-variable regression based on the partition coefficient ($\log P$) and polarizability, however, proved to be more accurate than the single-variable model.

Parmer Atrium (Global Learning Symposium Poster Presentations)

12:30 p.m.

Study Abroad

Imani Davis, Mynor Carcamo, Maia Martin Quynhhong Nguyen, and Ricardo Ramos

Study Abroad in London and Salzburg

Sue Ponremy

During the fall semester of 2015, five students lived and studied either in London, England, or Salzburg, Austria. This poster session focuses on important sites in each city / country that had special significance for each student. For some, the site was central to their research topics; for others, the site was

memorable because of its historical and cultural importance. In this global poster presentation, students will report on the significance of the sites that they have chosen.

Business

Joseph Lipsey

Carbon Emissions in the Automotive Industry

Anne Drougas

The European Union's (EU) target to reduce average new car emissions to 120 g/km was first proposed by Germany at a meeting of European environment ministers in October 1994. However, the EU claims carmakers are not reducing CO₂ emissions of their products fast enough to meet its standards.

Originally the target date was set for 2005; yet, the target date has been postponed at least three times. According to the EU, "light duty" vehicles, such as passenger cars and vans, are responsible for approximately 50% of CO₂ emissions since 2005. In this presentation, we utilize regression and correlation analysis to investigate the relationship between CO₂ emissions and miles per gallon by foreign (e.g., DaimlerChrysler, Volkswagen, Honda, Toyota) and domestic (e.g., Ford, Buick) carmakers.

Ehab Naser

The Reality of Value Creation in the Global Banking Industry: A Risk Governance Approach

Anne Drougas

Banks have a unique role in the economy by acting as intermediaries in the funding cycle. They accept deposits from savers and they create credits to support economic growth. This core function is associated with different types of risks. The impact of the failure in managing the banking risks and achieving adequate return is not limited only to the banking industry, but they are also affecting the whole economy through reducing the stability of the financial system. The International Convergence of Capital Measurement and Capital Standards (i.e. commonly known as Basel Accords) provide a comprehensive measurement for banking risks which is the Risk Weighted Assets (RWA). The basic economic concept in value creation is that the firm maximizes its value when the marginal revenue equals marginal costs. In banking, creating value occurs when marginal revenue equals marginal risks. Data from the top 1000 banks in the world reveals that the incremental increase in risks density (i.e. RWA / total assets) enhances the return on assets, but it does not enhance return on equity, mainly due to the diminishing of the return on risks density. Based on these results, this presentation recommends that the corporate governance rules should require a regular reviewing and periodical tracking for the return on RWA as well as defining the optimal range for the return on risks density as part of the board oversight processes.

Hyun Park

Impact of Gender and Socioeconomic Factors on Global Obesity

Anne Drougas

In 2015, approximately 2.1 billion people, or nearly 30% of the world's population, were classified as either obese or overweight. Contrary to popular belief, the obesity epidemic is not restricted to industrialized societies. In developing countries, it is estimated that over 115 million people suffer from obesity-related problems. In this study, we investigate the impact that globalization and socioeconomic factors have on obesity. Using regression analysis and data from the World Health Organization (WHO), we attempt to identify the main political, socioeconomic, cultural and physical factors which promote obesity environments. The scope of our study includes 55 countries, with special emphasis on those in the Asia-Pacific region.

Kelly Moynihan

Globalization & Obesity

Anne Drougas

What factors impact obesity? Efforts to combat obesity have been instituted by governments, companies, and non-profits worldwide. According to the International Obesity task force, an estimated 300 million people around the world are obese ($BMI>30$). For example, more than fifty percent of the adult population in Australia, Iran, Saudi Arabia, and the U.S. are either overweight or obese. In this study, data from the World Health Organization are used to examine the impact of economic and health-specific variables on obesity.

Lucas McKinney

Impact of Indicators and Oscillators on Trading FOREX Currency Pairs

Anne Drougas

In this study, the Forex trading platform FXCM is used to determine if one indicator/oscillator will produce greater returns than another. Six different currency pairs will be evaluated: EUR/USD, USD/JPY, GBP/USD, USD/CHF, AUD/USD, and GBP/JPY. Using historical trade signals and daily currency pair trades from January 2006 until December 2015, we will attempt to determine whether Bollinger Band Indicators and Awesome Oscillators provide the greatest returns.

Mary Tortorici

What Motivates Donations to a Nonprofit?

Anne Drougas

What motivates donations to a nonprofit? In this study, we attempt to determine whether specific financial and organizational characteristics of a nonprofit, such as fundraising expense, size, age, and efficiency ranking, impact their donations. This presentation relies on financial statement and organizational data that was collected for 172 nonprofit organizations from the National Center for Charitable Statistics (NCSS) and IRS Form 990.

Amanda Agne & Meagan Morales

Analyzing the OECD's Better Life Index

Anne Drougas

Founded in 1961, the Organization for Economic Cooperation and Development (OECD) is an international organization whose mission is to stimulate economic progress and world trade. As part of that mission, OECD collects and stores a variety of data to promote economic well-being at an international level. In this presentation, we explore the OECD's Better Life Index, which ranks countries on economic "happiness" internationally. Using correlations, means testing, multiple regression, and logistic regression, we will examine the impact of economic and demographic variables on the OECD's happiness rankings. Country-specific variables such as the unemployment rate, life expectancy rate, average housing prices, average salary, religion, and corporate governance variables will be investigated.

Msaad Alangari and Mohammed Alatawi

Who is Afraid of Cheap Oil?: The Impact of Oil Prices on the Saudi Stock Market

Anne Drougas

According to a recent article in *The Economist*, the price of a barrel of oil has fallen 75% and the world is drowning in oil. Saudi Arabia is pumping oil rapidly in an effort to drive out high-cost producers from the industry. The Saudis are prepared to absorb losses in order to do so. But what are the results of cheap oil? In the past cheap oil has helped the world economy because consumers spend more and travel more. Today, Russia and Saudi Arabia cut their budgets by 10% and 15%, respectively. Collapsing revenues could bring political and stock price instability to oil-producing areas, such as Venezuela and the Middle East. This presentation examines the impact of oil prices on the Saudi Arabian stock market.

Pawin Viriyamontchai

Competitive Devaluation in Developed and Developing Countries

Anne Drougas

The interrelationship between a nation's imports and exports, and its exchange rate, is complicated. The exchange rate has an effect on the trade surplus (or deficit), which then affects the exchange rate, and other variables. In general, however, a weaker domestic currency stimulates exports and makes imports more expensive. Conversely, a strong domestic currency hampers exports and makes imports cheaper. Countries occasionally try to resolve their economic problems by resorting to methods that artificially depress their currencies in an effort to gain an advantage in international trade. One such technique is "competitive devaluation," which refers to the strategic and large-scale depreciation of a domestic currency to boost export volumes. This study utilizes regression and correlation analysis to study whether competitive devaluation in developed and developing countries exists.

Ramzey Shehadeh

Internationalization of the NFL and Team Performance

Anne Drougas

On October 2, 2005, the first regular season NFL game was held outside the United States and over 100,000 spectators attended. In order to capitalize on global markets, on October 11, 2011, the NFL owners approved playing NFL games in Great Britain through the year 2016. Statistics show that less than 2% of overseas spectators are Americans. In addition to expanding games overseas, fantasy football fans have become more internationalized. Serving as virtual managers, fantasy football participants select rosters and draft picks in an effort to secure a winning team. In this presentation, we examine whether international expansion of NFL games has led to increased participation in fantasy football. We will also examine whether internationalization has impacted fantasy football draft picks, and individual and team performance metrics.

Robert Potratz

The Race for Funds: Linking Educational Funding with Student Success

Anne Drougas

The National Center for Education Statistics (NCES) collects, analyzes, and publishes statistics on education and public school district finance information in the United States. It also conducts international comparisons of education statistics. Using NCES data, this study will utilize regression and correlation analysis to assess the variables which statistically impact high school graduation rates. Critical factors include district and county government funding, type of institution (public or private), student-to-teacher ratio, property tax allocation to education, race, and gender.

Yi Xie

Investigating Transit Price Elasticity and Cross-Elasticity

Anne Drougas

During the last decade, the Massachusetts Bay Transportation Authority (MBTA) has raised fare prices several times in an attempt to close its budget gap. Despite the rise of Uber ridership and the decline in gas prices, the MBTA recently announced that it would hike the single-ride fare by approximately 10% on average in 2016. Would MBTA benefit from such a pricing strategy in achieving higher ridership, and then more revenue in the future? This poster examines the impact of transit fare price changes on MBTA's ridership via fare price elasticity calculations from 2004 to 2014. An examination of cross-elasticity between gas prices and transit ridership will also be included. Data were collected from the Bureau of Labor Statistics and the World Bank.

Parmer Atrium- Joint Reception URSCI Expo and the Global Learning Symposium

2:30 p.m. Announcement of 2016 URSCI Undergraduate Summer Scholarship Program (USSP) Awards: RCAS Dean Jeffrey Carlson

Undergraduate Research Opportunities at Dominican University

The office of Undergraduate Research, Scholarship and Creative Investigations (URSCI) builds upon the instruction in information literacy and research methods undergraduates receive through the core curriculum and the major field, and seeks to enhance the spirit and practice of inquiry occurring already across the curriculum. URSCI promotes undergraduate student-faculty collaborative research in all disciplines, offering students opportunities to engage in scholarly activities that go beyond regular class assignments, and administers a variety of initiatives to support undergraduate students involved in such scholarly projects. If you have questions about these opportunities, contact David M. Perry, PhD, Director of Undergraduate Research, Scholarship and Creative Investigations, at dperry@dom.edu

Students can earn course credit for working with a faculty mentor on a research project or creative investigation that is completed independently—not as part of a class assignment. A uniform course name and number (Beginning/Intermediate/Advanced/Senior Thesis Level Undergraduate Research/Creative Investigation --DEPT 195/295/395/495) has been established to designate participation in independent undergraduate research/creative activities across all departments. Students collaborate with faculty mentors on an ongoing faculty research project or conduct an independent project under the guidance of a faculty mentor.

The Undergraduate Research Support Award

The Undergraduate Research Support Award (URSA) program promotes Undergraduate Research, Scholarship and Creative Investigations by helping to defray the costs of independent student projects and student travel to professional conferences. Awards up to \$500 are granted to pay for approved supplies and equipment for a research project or creative investigation, or for approved travel to a professional conference, or travel to a unique resource collection within the continental United States for the purposes of scholarly research. All full-time undergraduates who have a GPA of at least 2.5 are eligible to apply. A Dominican University faculty member must sponsor the student's application. These applications are considered on rolling basis at any time until funds are depleted.

Rosary College of Arts and Sciences (RCAS) Undergraduate Research Assistantship Program

Undergraduate Research Assistant stipends fund students in assisting and collaborating on faculty-guided research or creative projects. Students will learn while supporting faculty in their research and creative activity. Faculty will mentor research assistants, teaching them relevant disciplinary skills and responsible conduct of research. Students may work up to 150 hours per semester and projects may last for more than one semester. To be eligible, the resulting project must normally contribute to faculty members' research or creative portfolio as required for tenure or promotion.

Undergraduate Summer Scholar Program (USSP)

The Dominican University USSP enables qualified undergraduate students to complete a research project or other creative investigation during the summer under the supervision of a faculty mentor. The student receives a \$2000 stipend and a tuition waiver for three credits of undergraduate research (DEPT 395/495). The USSP is open to any full-time Dominican undergraduate student in good standing who has completed his or her sophomore or junior year. The student must have completed a minimum of 60 semester hours in order to be eligible. Faculty members must be full-time members of the undergraduate or graduate faculty at Dominican University. Selection of participants is based on the student's academic merit and the quality of the proposed scholarly project. Scholarship recipients are

required to present their independent scholarly and creative work at the annual Exposition of Undergraduate Research, Scholarship and Creative Investigations that is held each spring.

University Honors: Bachelor of Arts and Bachelor of Science

Through the Honors Program, honors students can complete an honors project and non-honors students can complete a degree with distinction project in their major field.

Degree with Distinction Projects. The project leading to a degree of Bachelor of Arts or Bachelor of Science *with Distinction in their major* gives high achieving students in their junior and senior years the opportunity to study independently and understand the nature of scholarship and creativity in a particular field. Generally, students attempting the Degree with Distinction begin working on the project in the first semester of their junior year. Students work closely with a first reader from their discipline who will help guide the project and recommend a second reader for the project; the Director of the Distinction Project Process recommends the project to the Honors Committee for approval. The project is completed in the spring of the student's senior year.

Students must meet the following requirements to be eligible: junior status and a cumulative grade point average of 3.30 in the field of the project and an overall grade point average of 3.0. If the student's proposal is accepted, it is recommended that the student take ENGL 345 Advanced Academic Writing as a part of the project. Exemption from this requirement is possible at the discretion of the course instructor. Detailed deadlines as well as guides for writing a proposal and project guides for both students and faculty mentors are available in the Distinction Project Canvas Classroom, or from the Directors of the Honors Program.

Honors Projects. Students in the Honors Program may elect to complete a Distinction Project or honors coursework leading to a bachelor's degree with University honors. The process for completing the project is the same as for the Degree with Distinction.

Global Learning Opportunities at Dominican University

The Excellence in Experiential Learning (ExcEL) Scholar Awards Program offers support to Dominican University students who have specific plans for study abroad and other hands-on learning experiences and are seeking funds to bridge the gap between the cost of those experiences and their current financial means. Students are invited to apply for up to \$2000 to fund study abroad, study away, or alternative break immersion program fees; stipends that cover living expenses for unpaid internships or research projects; travel-related expenses, or research project materials.

The Center for Global Peace through Commerce (CGPC) offers programming that focuses on how social and business entrepreneurship can be a force for global good. The CGPC promotes internships in international economic development, corporate social responsibility, and anti-poverty efforts. To learn more, visit <http://www.dom.edu/gpcommerce/index.html> or contact Professors Liz Collier and Kathleen Odell, Co-Directors of the CGPC.

The Office for Community-based Learning (CBL)

The Office for Community-based Learning (CBL) allows students to engage in integrative cross-cultural learning experiences both within and across national borders through CBL courses, service-learning, study abroad, organized service, and research that addresses community needs. To learn more, visit

<http://www.dom.edu/service> or contact MaDonna Thelen, Director, CBL.

Study Abroad

The Study Abroad Office encourages students to spend time outside U.S. borders in both faculty led travel courses and semester or year programs in Latin America, Africa, Asia and Europe. To learn more, visit the <http://www.dom.edu/departments/studyabroad/index.html> or contact Sue Ponremy, director of International Studies.

Globally positioned student organizations

Student groups engage deeply in global and intercultural learning and work at Dominican. The Black Student Union, the Organization of Latin American Students, the Polish Club, Team Kiva, Net Impact, the Eco Club, SERVE, Common Ground, Students for Peace and Justice, Amnesty International and the Dominican Student Immigrant Collective lead many on- and off-campus efforts to strengthen global knowledge and work for meaningful change.

Academic programs

Providing pathways to active world citizenship is a core part of a Dominican education. RCAS students pursue global study in the core curriculum and through majors or minors in Black World Studies, International Business, International Relations and Diplomacy, Social Justice and Civic Engagement, and Women and Gender Studies. Both the Graduate School of Social Work and the Brennan School of Business offer students global field placements and host visiting international scholars for vital exchanges of ideas and practices.

The Graduate School of Library and Information Science, which publishes the international online journal, *World Libraries*, prepares students to understand libraries as agents of local and global socio-economic development. The School of Professional and Continuing Studies' MA in Conflict Resolution is a one-of-a-kind, interdisciplinary program for those committed to working for peace and justice.

Acknowledgements

The office of Undergraduate Research, Scholarship and Creative Investigations (URSCI) and the Academic Enrichment Center (AEC) would like to thank all of the faculty sponsors for their work with the undergraduate students participating in the URSCI Exposition and the Global Learning Symposium. The encouragement given to the students makes it possible for them to engage in inspired scholarly endeavors that take them beyond the classroom walls. We also express our appreciation to the session moderators and timekeepers for volunteering their time to make this exposition a success.

We extend our gratitude to the faculty members who released their Parmer Hall classrooms for the day's presentations: Daniela Andrei, Marion Weedermann, Joseph Sagerer, Elisa Fischer, Rahel Bokretzion, Irina Calin-Jageman, Robert Wilson, Demirhan Tunc, Christopher Anderson, Carissa Buber, Scott Kreher, Tracy Caldwell, Lou Scannicchio, Pliny Smith, and Marcia Nawrocki. We appreciate your generosity and support of our efforts to promote student research, experiential learning, and global engagement.

We wish to express sincere thanks to Pete Peterson in the Office of Information Technology and Becky Lopez in the Office of Marketing and Communications, for their help in processing applications and preparing the URSCI and GLS program. We thank AEC Graphic Design assistants Lupe Juarez and

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