

Program Overview (A.M.)

	URSCI 108 Parmer Hall	URSCI 115 Parmer Hall	URSCI 113 Parmer Hall	Global Learning Symposium 107 Parmer Hall	URSCI Posters Parmer Atrium
9:30	<p>Diana Cortes and Yesenia Peyret <i>Research in the Community Panel</i></p>	<p>Breeanna Watral <i>More than the Parts that Form Them: Medievalism and Comfortable Alienation in The Hobbit and the Kingkiller Chronicle</i></p> <p>Degree with Distinction and Honors Project</p>	<p>Willa Skeeahan <i>Wound Healing: A Mathematical Model</i></p> <p>Degree with Distinction and Honors Project</p>	<p>Julia Lopez, Dahlia Mijarez & Sean Flosi <i>The Ethics and Impact of International Trade</i></p> <p>Panel Discussion</p>	<p>Apparel Merchandising & Design (includes Harrison, Rubino, Sollis, Lynch)</p> <p>Psychology (includes Krikie, Maisel, Mathes, Parsons & Wheeler)</p> <p>Communications Arts & Sciences (includes Patterson, Stepkowski)</p> <p>Digital Cinema & Photography (Cruz Rodriguez)</p>
10:30	<p>Mazen Aljari <i>Saudi and U.S. Relations</i> Senior Thesis</p> <p>Ryan Freeman <i>An American Lifestyle: Now Achievable Through What You Drive</i> Senior Thesis</p> <p>Suzana Tesla and Anna Derkacz <i>John Marshall Fair Housing and Fair Lending</i></p>	<p>Catherine Conte <i>Behaviorial and Molecular Mechanisms of Forgetting in Aplysia</i></p> <p>Undergraduate Summer Scholar 2014</p>	<p>Stanislaw Kolek <i>Can Reducing Self-Importance Decrease Verbal Aggression?</i></p> <p>Degree with Distinction and Honors Project</p>	<p>Andrea Hinojosa, Lisa Keller, Maria Dellanina, Claire Shunk, Willa Skeeahan, Evelyn Sanchez, Sofia Sandoval, Camila Waksanski & Crystal Zea <i>Guatemala: Global Learning in Solidarity and Service</i></p> <p>Community-Based Learning and Study Abroad Panel Discussion</p>	<p>Biology (includes Anita Szuba, Araceli Lazcano, Catherine Conte, Dalal Abuaqel, Eileen Moery, Jillian Metcalf, Rocio Aguilar, Ryan Ziffra, Radhika Patel, Lirije Milla, Monica Tamrazi, Karolina Kir,</p>
11:30	<p>Mitchel Alejo <i>Violence in America</i></p> <p>Jessica Zwolinski <i>Civil Death for Juveniles</i></p> <p>Abel Orizaba <i>The Importance of Consent: How We Can Challenge Our</i></p>	<p>Eileen Moery <i>Wholesome Morals: A Replication of Moral Licensing</i></p> <p>Honors Project</p>	<p>Suzana Tesla <i>Restarting The Constellation</i></p> <p>Degree with Distinction and Honors Project</p>	<p>Atzimba Rodriguez, Salman Alkahtani, Julia Lesniakowski, Carlos Monrroy Tinoco & Erlind Sulo <i>Crossing Cultural Boundaries: The Buddies Program at Dominican University</i></p> <p>Panel Discussion</p>	<p>Chemistry (includes Adrian Paszek, Amanda Bell, Amy Do, Cara Watkins, Daniela Vaccarezza, Danielle Gilbert, Erica Weiszmann, Ericka Maciel, Jelena Bulatovic, Jennifer Santin, Karen Alvarez, Katie Heiden, Liliana Cruz, Lirije</p>

	<i>Ideas About Sex</i>				Milla, Lisa Alexander, Matilda Kovogui, Nader Ismail, Nicholas von Schrott, Nicolle Heiberger, Nicolle Chan, Patrick Tednes, Rielle Sacco, Steven Jette, Nicole Fledderman, Swapna Shanmugavelayutha

Program Overview (P.M.)

	URSCI 108 Parmer Hall	URSCI 115 Parmer Hall	URSCI 113 Parmer Hall	Global Learning Symposium 107 Parmer Hall	Global Learning Symposium Posters Parmer Atrium
12:30	<p>Jeewanjot Grewal</p> <p><i>COMPASS-like Complex Regulates Target Gene Enhancers</i></p> <p>Honors Project</p>	<p>Trisha Neidlinger</p> <p><i>A Study of the Relationship Between the Genetic Counseling Profession and the Disability Rights Movement</i></p> <p>Honors Project</p>	<p>Tanner Strong, Lea Cahill & Mynor Carcamo</p> <p><i>Leadership Certificate Program</i></p> <p>Capstone Project Panel</p>	<p>Paulina Wojtach, Kim Mathes, Suzana Tesla</p> <p><i>Communities Crossing the Globe: Similarities and Differences, the China Experience</i></p> <p>Panel Discussion</p>	<p>Gabrielle Lehmann, Alexandra Kopot, Alyssa Davis, Brandt Bechard</p> <p><i>Drawing on Florence, the City as Renaissance Text</i></p> <p><i>Drawing and Photo Display</i></p>
1:30	<p>Tyehimba Turner</p> <p><i>Identifying Novel Genes Involved in Rebaudioside A Transport and Metabolism in Environmentally-Isolated Microbes</i></p> <p>Degree with Distinction Project</p>	<p>Lauren Kasprzyk</p> <p><i>Does Power Have the "Power" to Influence Visual Perspective?</i></p> <p>Honors Project</p>	<p>Monika Horvat</p> <p><i>Endangered: An investigation and business plan for tatting in the 21st century</i></p> <p>Degree with Distinction Project</p>	<p>Lisa Keller, Jazzine Acevedo, Andrea Hinojosa, Diana Cortes, Andrea Marquez, Bianca Mena, Rodolfo, Atzimba Rodriguez, Claire Shunk, Willa Skeeahan, Katarzyna Tracz & Amanda Villagomez</p> <p><i>Haiti: There Are No Easy Answers</i></p> <p>Community-Based Learning and Study Abroad Panel Discussion</p>	
2:30	<p>Aracelis Sanchez</p> <p><i>Feminism as critical international relations theory: exploring the politics of resistance in the Arab Spring and the</i></p>		<p>Sebastian Doroz, Anne Glaza, Lauren Kasprzyk, Stanislaw Kolek, Lauren Pinkston, Janice Quintero, Sara Scheler, Suzana Tesla, Stephanie Zavala</p>	<p>Arianna Salgado</p> <p><i>Resisting Detentions and Deportations: Defense Strategies in the Undocumented Community</i></p>	

	<p><i>Zapatista Mexican Rebellion</i></p> <p>Alexandra Modoran <i>Human Trafficking in Eastern Europe (Romania)</i></p>		<p><i>Learning the Hard Way: The Wisdom and Preparation that Seniors Need to Be Successful</i></p> <p>HNSM 465 Panel</p>		
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PARMER ATRIUM

3:30 ANNOUNCEMENT OF 2015 UNDERGRADUATE SUMMER SCHOLAR PROGRAM (USSP) AWARDS

RCAS DEAN JEFFREY CARLSON

	<p>Global Learning Symposium Graduate Student Panel – 107 Parmer Hall</p>	<p>Global Learning Symposium Graduate Student Panel – 115 Parmer Hall</p>
4:30	<p>Lorrie Hansen, Rachel Wedeward, Justin Briggs, and Abrar Alkusaimi <i>Building Literary and Cultural Connections: The Great Guadalajara International Book Fair</i> Graduate School of Library and Information Science Panel</p>	<p>Mayra T. Galarza Acosta, Hsiang-Chieh Chen, Alma R. Llamas, Caritina Almanza, Sheree White, Maestro Bernardo Guerrero Góngora, Dra. María Eugenia Perea Velázquez <i>Aguascalientes Migration Project</i> Graduate School of Social Work Panel</p>

Bluhm Lecture Hall - 108 Parmer (URSCI Oral Presentations)

9:30 a.m.

Diana Cortes and Yesenia Peyret

Research in the Community

MaDonna Thelen

Social Justice students worked with Prevail, Corazon, and St. Pius Catholic Parish to carry out community-based research projects in which they learned about violence in the community, people living in poverty, and effectively using social. The students will present upon the community based research projects they carried out and what they learned in their work with these local organizations.

10:30 a.m.

Mazen Aljari Senior Thesis

Saudi and U.S Relations

David Dolence

This presentation will address the relationship between Saudi Arabia and the United States, beginning with a discussion of some facts of Saudi Arabia and its history. The presentation will focus on how oil made the relationship so strong between Saudi and US and discuss the relationship between the two countries before and after the events of September 11, 2001. Finally, the discussion will address the Saudi government's fight against terrorism, the first time the American military entered the gulf region in the Gulf War, King Abdullah and the new Saudi King Salman.

Ryan Freeman Senior Thesis

An American Lifestyle: Now Achievable Through What You Drive

Jennifer Dunn

The purpose of this study is to discover and understand what message American car companies are trying to advertise to their target market. As their advertising practices evolve in magazines, online, or television commercials, American car companies no longer just advertise the vehicle, but now focus on promoting a lifestyle. Through narrative analysis, three American car commercials and one import commercial that were featured in Super Bowl XLIX will be dissected and evaluated to better understand the ideal message car manufacturers are attempting to convey to their audience. The examples that will be used in this analysis will be the Dodge "Wisdom" commercial, the Jeep Renegade "Beautiful Lands" commercial, and the Chevrolet Colorado "Blackout WiFi" commercial. Those commercials' narratives will be compared with one undisclosed import car commercial.

Suzana Tesla and Anna Derkacz Independent Class Project

Fair Housing and Fair Lending: Lessons from the John Marshall Law School Program

David Dolence

Before the Civil Rights Movement, housing market discrimination was common and blatant, especially against African Americans and other minority groups. Today, we would like to believe that we have taken measurable steps to eliminate discrimination, but the reality is that discrimination is still present

even though it may not appear as flagrantly as it did in the past. This presentation will analyze the causes and consequences of housing segregation and discrimination in the United States and the city of Chicago. In addition to identifying the relationship between federal and state law enforcement in fighting housing discrimination, the presenters will establish possible remedies and protections available to victims under the law. Taken directly from a course offered at the John Marshall Law School in Downtown Chicago, this presentation introduces an injustice that occurs readily in our own backyards.

11:30 a.m.

Mitchel Alejo

Violence in America

Michelle VanNatta

Structural violence is comprised of the systemic structures that cause harm or disadvantages towards certain individuals. Structural violence is a social injustice that privileges a few due to class, race, ethnicity, and gender; creating an unequal distribution of power and wealth and ultimately affecting a person's ability to fully develop or realize their potential. Structural violence is present in our communities, schools, workplaces, and homes. Structural violence does not allow equal life opportunities and is prevalent throughout lower class communities. The goal of this presentation is to identify and analyze less visible forms of violence, and their effects on a personal and community level. The sociological research presented here is based on analysis of secondary sources.

Jessica Zwolinski Independent Research Project

Civil Death for Juveniles

Michelle VanNatta

Juveniles who get life without parole are behind bars for a crime they committed while they were adolescents. Much of the public sympathizes is critical of these sentences because they sympathize with the young people who are convicted. This presentation will argue that putting juveniles behind bars is against the criminal justice model; rehabilitation cannot be achieved if they are forever behind bars. Presenters will argue that "Life without parole" sentences violates the Eight Amendment, that there is a racial disparity with who gets life without parole, and that individuals who are on the jury may have bias. The presenters will also note that neurological development research shows that juveniles might not understand the gravity of their crime at the time of the act. Clemency should be granted for juveniles if they committed the crime before eighteen. In addition, this presentation will compare society's past and present view of these children and analyze the United States ideology of being tough on crime. Lastly, this presentation will look at social theories that relate to juvenile delinquency.

Abel Orizaba Independent Research Project

The Importance of Consent: How We Can Challenge our Ideas about Sex

Kelly Burns

This project will do three things. First, it will provide a quick historical examination of Western ideas about sex and sexuality, and how those ideas are carried out today. Then it will discuss how people have challenged those social norms about sex through the use of consent. I argue that through the use of consent, people can enjoy a fuller and more diverse sex life. Also, I will argue that people can develop sexual norms through sex positive lenses by a better understanding of what is meant by consent. This

presentation will cover topics such as hook-up culture, sexual violence, monogamy, polyamory, and BDSM. I hope to help bring discussion about the value of sex and the importance of consent.

12:30 p.m.

Jeewanjot Grewal Honors Project

COMPASS-like Complex Regulates Target Gene Enhancers

Michelle Sweeney

First Reader: Dr. Scott Kreher, Biology

Second Reader: Dr. Irina Calin-Jageman, Biology

Other Reader: Dr. Andrew Dingwall

The Dingwall Lab studies a highly conserved group of proteins that form a complex called the COMPASS-like Complex whose main function is to regulate gene expression through direct effects on chromatin structure using the *Drosophila melanogaster* (fruit fly) as a model organism. Research efforts are targeted at understanding how each subunit contributes to the functions of the complex in regulating tissue-specific gene expression during organism development. This is important because when individual components of this complex are missing or mutated, certain cells lose the ability to properly differentiate or proliferate, leading to a variety of diseases including cancers. Over the summer I studied particular protein subunits of the complex called Cmi and Trr by mutating the complex through genetic crosses. I was able to gain much experience with micro-dissecting fly tissues, as well as learning different experimental methods to analyze gene interaction data through immunostaining and CPRG assays.

1:30 p.m.

Tyehimba Turner Degree with Distinction Project

Identifying Novel Genes Involved in Rebaudioside A Transport and Metabolism in Environmentally-Isolated Microbes

Margaret Jonah

First Reader: Margaret Jonah, Biology

Second Reader: Mickey Sweeney

The pathways involved in rebaudioside A (the major component of the natural, non-caloric sweetener, stevia) metabolism in humans and microbes are poorly understood. This study tests the hypothesis that random transposon mutagenesis of wild type microbes is a novel approach to analyzing possible catabolic pathways for rebaudioside A's utilization in cells and the human body. We have isolated four strains of bacteria from forest soil that utilize rebaudioside A. Selected growth characteristics of these bacteria have been documented and we have used 16S rRNA to determine their presumptive species. For one of these soil isolates, we have studied carbohydrate utilization and used whole genome sequencing to identify its species. We also used transposon mutagenesis to disrupt the genes responsible for rebaudioside A metabolism in this isolate. Classical transposon mapping was used to identify sites of insertion. We hypothesized two outcomes: 1) We will discover positive regulatory genes (i.e. genes that activate the metabolic genes), or 2) we will discover the metabolic genes themselves. In this way, we have partially identified the genes and pathway responsible for rebaudioside A metabolism.

2:30 p.m.

Aracelis Sanchez Senior Thesis

Feminism as critical international relations theory: exploring the politics of resistance in the Arab Spring and the Zapatista Mexican Rebellion

Patrick Homan

Feminist approaches have long been marginalized in the male-dominated discipline of international relations. As a subfield, feminist theories in international relations have fallen short in making an impact on mainstream ideologies and theories within the field. In this paper, I aim to use feminist theory as critical theory by using it to frame and understand the politics of resistance. By using two cases studies – the Arab Spring and the Zapatista movement – I intend to apply feminist international relations theory in order to describe and explain these resistance movements. Feminist theory provides a different perspective to international relations that recognizes the patriarchal nature of the state and market and includes gender as an important category of analysis. Women make huge contributions in the political and economic realm yet their stories and contributions have largely been dismissed or left out of the master narrative. In exploring the politics of resistance in the Arab Spring and the Zapatista movement, I aim to illustrate women's active role in resistance to modern international phenomena such as globalization, neoliberalism, militarization, and authoritarianism.

Alexandra Modoran Senior Thesis

Human Trafficking in Eastern Europe (Romania)

Patrick Homan

Human trafficking in Eastern European countries like Romania is a problem that has been present for years, but the drastic increase of victims in the last decade has concerned government institutions and affiliated actors enough that they have made drastic decisions to combat the crime. The Romanian government, in close connection with the European Union Commission and nongovernmental organizations, is trying to find long term solutions to decrease the high number of victims forced to work as prostitutes in other European countries. Their commitment to combat this illegal industry is to plan and implement preventive campaigns adjusted to the local, national and international context that takes in consideration the most vulnerable groups. In order to combat this illegal crime, the Romanian government is planning to increase its funds, provide more proper assistance to victims, create educational programs, improve its statistical interpretations but, most importantly, create a stronger civil society strategy in which victims can find the support they need to overcome the problem.

115 Parmer Hall (URSCI Oral Presentations)

9:30 a.m.

Breeanna Watral Degree with Distinction and Honors Project

More Than the Parts That Form Them: Medievalism and Comfortable Alienation in The Hobbit and the Kingkiller Chronicle

Mickey Sweney

First Reader: Mickey Sweeney, English

Second Reader: David Perry, History

This paper explores the ways in which authors of contemporary fantastic literature utilize elements of medieval literature to create comfortable alienation—a balance of alterity and familiarity meant to draw readers into an alternate setting without leaving them too estranged. This balance occurs in the blending of medieval elements with modern ones in both the plot and central characters of J.R.R.

Tolkien's *The Hobbit* and Patrick Rothfuss's *Kingkiller Chronicle*. In both works, the authors' use the foreignness of the Middle Ages with the familiarity of modern ideas to make readers feel at ease in the worlds that they have created.

10:30 a.m.

Catherine Conte Independent Research Project

Behavioral and Molecular Mechanisms of Forgetting in Aplysia

Irina Calin-Jageman

Sensitization of the tail-elicited siphon withdrawal reflex (T-SWR) in *Aplysia californica* provides an idea model system for understanding the mechanisms of long-term memory. My research examined three important questions about sensitization memory: 1) How long do sensitization memories last? 2) Once apparent forgetting occurs, is a latent sensitization memory maintained?, and 3) What happens to gene expression as a sensitization memory is forgotten? To answer the first question *Aplysia* were given sensitization training (4 rounds of strong electrical shocks to one side of the body), and the strength of the memories formed were tested over the course of many days by measuring the duration of a basic reflex. I found that it takes about 7 days for the sensitization memories to completely fade. In order to determine if a latent sensitization memory exists in *Aplysia*, animals which had had lost their sensitization memories (or “forgot”) were given weak reminder shocks in attempt to rekindle the sensitized memories. After the reminder shocks, animals were tested to see if a latent memory existed. The results from this experiment are currently inconclusive. Finally, gene expression was measured in *Aplysia* both 1 day after training (when memory was still strong) and 1 week after training (after forgetting). Right after training, there were increases in the expression of the genes ApBiP, ApEgr, and ApGlyT2. With forgetting, however, all these changes faded away.

11:30 a.m.

Eileen Moery Honors Project

Wholesome Morals: A Replication of Moral Licensing

Irina Calin-Jageman

First Reader: Ellen McManus, English

Second Reader: Dr. Tina Taylor-Ritzler, Psychology

Eskine (2012) found that exposure to organic food caused participants to give harsher moral judgments than exposure to comfort or control food. Eskine attributed this to moral licensing, which is the concept that doing good things allows people to justify doing poor things. The small sample size of the original study and a lack of any reported replications motivated this replication. Our goal was to conduct a high-powered replication with a larger sample size and more rigorous methodology. We conducted three replications: one classroom study at Dominican University, an online study using Mechanical Turk, and a field study. All three studies did not find a strong effect of food on moral judgments. These replications help illustrate some general problems in psychology today. Too many studies with weak methodology and low-power are being published because they show significant results but are not being tested through replication. IRB # 2014-58

12:30 p.m.

Trisha Neidlinger Honors Project

A Study of the Relationship Between the Genetic Counseling Profession and the Disability Rights Movement

Tama Weisman

First Reader: Tama Weisman, Philosophy
Second Reader: Ellen McManus, English

This presentation is based on research into the relationship between the disability rights movement and the genetic counseling profession. With prenatal genetic counseling playing such an essential role in the decision making process of prospective parents of a child with a disability, it is to no surprise that there has been tension between the two. Disability rights advocates want prenatal genetic counselors to go beyond the medical model when discussing with clients the prospect of parenting a child with a disability. While prenatal genetic counselors may have not seen the importance of such considerations in the past, disability rights advocates have changed the public understanding of and attitudes toward disability, and the genetic counseling profession has responded accordingly. In order to get a preliminary understanding of how they responded, I examined publicly available descriptions of 31 accredited genetic counseling programs to see what these programs are or are not doing to prepare their students to take into account the medical, social, personal, and ethical considerations involved in parenting a child with a disability.

1:30 p.m.

Lauren Kasprzyk Honors Project

Does Power Have the “Power” to Influence Visual Perspective?

Robert Calin-Jageman

First Reader: Robert Calin-Jageman, Psychology

Second Reader: Tracy Caldwell

A highly cited study by Galinsky, Magee, Inesi & Gruenfeld (2006) found that participants who were primed to feel powerful are significantly more likely to adopt an egocentric perspective. Although this study is now part of introductory psychology textbooks, it is based on a small sample size and has never been directly replicated. To find out if the effect of power on perspective-taking is robust, I planned a high-powered, precise, pre-registered replication of Experiment 1 of Galinsky et al. (2006). Participants were randomly assigned into (1) a high power group or (2) a low power group. Participants were then asked to complete two power primes: a memory recall task and a lottery resource allocation task. To measure visual perspective taking, each participant was asked to draw a capital “E” on their foreheads. Participants who drew an “E” appearing backwards to others were determined to have adopted an egocentric perspective while participants who drew an “E” appearing forwards to others were determined to have adopted a non-egocentric perspective. It was found that being primed into a position of power did not have a significant effect on visual perspective taking, despite previous findings by Galinsky et al. (2006). This replication further asserts the necessity of replication studies in psychological science. IRB # 2014-56

Global Learning Symposium

Graduate Student Panel

115 Parmer Hall

4:30 p.m.

Caritina Almanza, Mayra T. Galarza Acosta, Hsiang-Chieh Chen, Alma R. Llamas, Sheree White, Maestro Bernardo Guerrero Góngora, and Dra. María Eugenia Perea Velázquez

Aguascalientes Migration Project

Leticia Villarreal Sosa

This study is aimed at understanding the migration of people from Aguascalientes, the smallest state in Mexico, to Chicago. This research will explore different aspects of what prompts people from Aguascalientes to migrate to Chicago and for some, to return. In recent years there has been a decline of migration to metropolitan areas in the U.S. due to an increased cost of living in the U.S. as well as limited job opportunities caused by the global financial crisis. What is particularly puzzling about Aguascalientes is that despite being a relatively wealthy Mexican state, a culture of migration continues. This study will contribute to our theoretical understanding of migration and social and cultural factors that may also influence an individual's decision to migrate. Our findings will contribute to previous research on migration as it is focused on an area of Mexico that has not been the focus of previous studies.

113 Parmer Hall (URSCI Oral Presentations)

9:30 a.m.

Willa Skeeahan Degree with Distinction and Honors Project

Wound Healing: A Mathematical Model

Marion Weedermaan

First Reader: Marion Weedermaan, Mathematics

Second Reader: Mihaela Blanariu, Mathematics

The mathematical model created in this project uses partial and ordinary differential equations to show how wounds heal over time. The research also looks at how bacteria may affect the wound healing process. This project incorporates Mathematics, Biology, and Computer Science.

10:30 a.m.

Stanislaw Kolek Degree with Distinction and Honors Project

Can Reducing Self-Importance Decrease Verbal Aggression?

Tracy Caldwell

First Reader: Tracy Caldwell, Psychology

Second Reader: Mickey Sweeney, English

This study explores the effect of self-importance on verbal aggression. Participants watched two videos, one that has been demonstrated by past research to decrease participants' perceptions of their own self-importance, and another that acted as the control. Participants then reflected on the video they watched with a "partner," but the partner was a computer program with automated responses designed to provoke anger. Participants in the diminished self-importance condition were expected to act less aggressively when given negative feedback from the program about their reflection. Participants in the diminished self-importance condition were also expected to display higher levels of humility.

11:30 a.m.

Suzana Tesla Degree with Distinction and Honors Project

Restarting the Constellation

Mary McManus

First Reader: Ellen McManus, English

Second Reader: Rebecca Pliske, Psychology

The Constellation, Dominican's undergraduate research journal, was created in 2012 to allow students to publish their academic work for an audience beyond the classroom. For a variety of reasons, its publication has been suspended since then. My Honors project is part of an effort to get the journal up and running again. I have researched existing undergraduate research journals in order to understand their missions, policies, and procedures, and on the basis of this research I have created the necessary materials to allow the journal to come to life again. In this presentation, I will provide an overview of undergraduate research, recount the history of The Constellation, describe the materials I have created for it and my vision for the future of the journal, and reflect on what I have learned during this process. As the URSCI symposium suggests, research across the disciplines is now an integral and important aspect of learning for many Dominican students, and the aim of my presentation is to reactivate interest in The Constellation within the Dominican community. My presentation will end with a call for papers for publication in the 2016 issue.

12:30 p.m.

Tanner Strong, Lea Cahill and Mynor Carcamo

Leadership Certificate Program / Capstone Projects

Katie Kramer

For the first time at URSCI - join three students from the Leadership Certificate Program as they share their capstone projects. Learn about how their passions and leadership experiences guided them to explore a variety of topics from assisting students and organizations to life after Dominican.

1:30 p.m.

Monika Horvat Degree with Distinction

Endangered: An Investigation and Business Plan for Tatting in the 21st Century

Tracy Jennings

First Reader: Tracy Jennings, Apparel Design

Second Reader: McKinley Johnson, Apparel Design

Over the past year, I have investigated how my knowledge of tatting, a handmade lace, could create appealing garments that are applicable to the 21st century consumer. I also explored how tatting and other handcrafts could draw the modern customer away from fast fashion and towards a better quality long lasting product. This investigation included researching the history of tatting, creating other handcrafts, and designing a garment using tatting. The resulting investigation is a business plan for the luxury market, which supports the garment I constructed, as well as my senior collection.

2:30 p.m.

HNSM 465 Panel

Sebastian Doroz, Anne Glaza, Lauren Kasprzyk, Stanislaw Kolek, Lauren Pinkston, Janice Quintero, Sara Scheler, Suzana Tesla and Stephanie Zavala

Learning the Hard Way: The Wisdom and Preparation that Seniors Need to Be Successful
Mickey Sweeney

Global Learning Symposium

107 Parmer Hall

9:30 a.m.

Julia Lopez, Dahlia Mijarez and Sean Flosi

The Ethics and Impacts of International Trade and Economic Growth
Kathleen Odell

Panelists will analyze how international trade and economic growth has impacted the well-being of life in India, El Salvador, and China.

1. India (Julia Lopez): In the last 20 years, India has experienced rapid economic growth. Today India's poverty rate stands at 21.9%. Using statistical data from The World Bank, I discuss whether India's economic growth has led to reducing poverty while enhancing the quality of life for India's population.
2. El Salvado (Dahlia Mijarez): While in El Salvador, it was clear that the presence of the mining industry in small towns we visited was a blessing and a curse. During the planning stages the mining company courted the local officials and community with goods and services. However, during and after the company's stay, the damage to the environment was detrimental. I will weigh the ethical dilemma caused by the positive and negative affects of the mining industry on these communities. It seeks to explore whether the positive influence to the economy outweighs the strain and destruction on the ecosystem.
3. China (Sean Flosi): This project will explore the working conditions for factory workers in China, with the aim of determining if they are as bad as they are portrayed to be in the media. If conditions are indeed as bad as they are depicted, the presentation will examine whether individual consumers would want to own products if they were aware of the conditions, and whether firms want to sell products produced in this way. When our consumer products originate in distant places, what is the responsibility of consumers and firms for the conditions at the point of production?

10:30 a.m.

Andrea Hinojosa, Lisa Keller, Maria Dellanina, Claire Shunk, Willa Skeehan, Evelyn Sanchez, Sofia Sandoval, Camila Waksanski, and Crystal Zea

Guatemala: Global Learning in Solidarity and Service
MaDonna Thelen

Listen to nine students describe their adventures and experiential learning in Guatemala. From falling trees to cinder block work outs, students learned about the culture, the people, and themselves.

11:30 a.m.

Atzimba Rodriguez, Salman Alkahtani, Julia Lesniakowski, Carlos Monrroy Tinoco and Erlind Sulo

Crossing Cultural Boundaries

Gema Ortega

International and local undergraduate students will share their experience building cross-cultural relationships and expanding their sense of multicultural understanding at Dominican University. Many of our undergraduate international students are presented with the many challenges of assimilating to a new country like the United States. Through the Buddies Program at Dominican University, local and international students are able to work hand in hand to understand each other better, building relationships with students across the globe. These interactions stimulate understanding and cultural competence. Students who form part of the Buddies Program will present their course of growth and the knowledge acquired through the process of crossing cultural boundaries. Crossing cultural boundaries through service is highly relevant to our mission of Caritas et Veritas and can only be achieved by expanding our views as we create a more inclusive and just community at Dominican and throughout the world.

12:30 p.m.

Paulina Wojtach, Kim Mathes and Suzana Tesla

Communities Crossing the Globe: Similarities and Differences, the China Experience

Daniel Beach and Ning Zou

This session addresses the similarities and differences between the culture, tradition, and modern development of two countries: China and the USA. Panelists from the 2014 Study Abroad China program will share their firsthand experience in China, their interactions with local residents, Chinese college students, vendors in the market, and international travelers; their encounters with various religious traditions in China, and their global perspectives gained from the trip. Our students' lives in America and at Dominican University are replete with examples of cultural diversity, and the challenges of integrating many different peoples into a single society. Despite the fact that China has 55 official minority groups, those groups live in geographically isolated regions, and constitute less than 10% of the 1.35 billion population. The vast majority of the Chinese people are of Han Chinese ancestry. When the average Chinese person awakens in the morning she or he looks around and sees people who are much like her or him. It is a society without much diversity. The concepts of integration, cultural tolerance, and appreciation of diversity are neither discussed nor considered to be of significant value. We were a curiosity within Chinese society, and the students had various experiences associated with this they will share during the presentation.

1:30 p.m.

Lisa Keller, Jazzine Acevedo, Andrea Hinojosa, Diana Cortes, Andrea Marquez, Bianca Mena, Rodolfo, Atzimba Rodriguez, Claire Shunk, Willa Skeeahan, Katarzyna Tracz, Amanda Villagomez

Haiti: There Are No Easy Answers

MaDonna Thelen

Dominican students reflect on a week of service in Haiti. On March 7, the students were immersed into a diverse culture and learned about how poverty has permeated Haiti before and after the earthquake. During the panel, the presenters will discuss how there are no quick answers or solutions for fixing the problems of poverty in a nation as complex as Haiti.

2:30 p.m.

Arianna Salgado

Resisting Detentions and Deportations: Defense Strategies in the Undocumented Community

Douglas Keberlein

Under the Obama administration, the undocumented community has seen an increase in both detention and deportations. As a response to this, communities across the United States have organized coming out events, know your rights workshops, direct actions, and community defense groups. These strategies have allowed undocumented individuals to feel empowered and take the lead in a movement that seeks immigrant justice, a justice which not only results in an end to deportations and detentions but that creates pathways to legalization as well.

4:30 p.m.

Lorrie Hansen, Rachel Wedeward, Justin Briggs and Abrar Alkusaimi

Building Literary and Cultural Connections: The Great Guadalajara International Book Fair

Katherine Marek

As the inaugural GSLIS class to attend the Guadalajara International Book Fair this past Fall, we welcome the opportunity to share our experience. Rachel Wedeward will begin with an overview of the LIS 796 course, including its structure, our pre-travel seminars, the educational and cultural activities in Guadalajara, and our post-trip reflection. Justin Briggs will then provide a more detailed description of the Guadalajara International Book Fair, including its purpose, the organizations that collaborate to make the event happen, and some data to illustrate its scope. Abrar Alkusaimi will explain how this course provided us with a foundation for understanding international librarianship and describe other GSLIS authentic learning opportunities. Lorrie Hansen will conclude by discussing why this was a transformative learning experience, how it was relevant to each of us personally and collectively, and what the implications are for our Dominican community and the global community.

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

3:30 p.m. Announcement of 2015 URSCI Undergraduate Summer Scholarship Program (USSP) Awards: RCAS Dean Jeffrey Carlson

URSCI Poster and GLS Presentations in Parmer Atrium

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 2015 Annual Juried Student Exhibition Awards ceremony took place on March 25, 2015. The guest juror / curator was Steven Bridges, a curator at the Museum of Contemporary Art, Chicago.

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

Best Work of Paper: Melanie Tassone

Best Color Photograph & Best of Show: Michael Harkovich

Best Black & White Photograph: Alexis Petrzilka

Best Design & Best Typography: Jonathan Parnell

Best Ceramic: Nicole Kleinert

Best Use of Materials: Eve Remien

Honorary Mention in Painting and Drawing: Alyssa Davis

Honorary Mention in Color Photography: Julie Fenske

Honorary Mention in Drawing: Melanie Tassone

9:30 a.m.

Apparel Design & Merchandising

Dominican University Senior Apparel Collections

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 March 28 and 29, 2015. 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.

Lindsey Able

Maratus

Carina Chiquito

Olé: El Torero

Gabriela Chiquito

Mother of Dragons

Adeline Harrison

Being

Monika Horvat

divulge

Autumn Kapka

Hope on Mars

Fiona Lynch

Radiance

Samantha Petkofski

Animal Pharm

Alexandra Tourison

Struck

Tyehimba Turner

Sterling Silver: Microaggressions

Adeline Harrison Independent Research Project

Study Abroad in Paris – Learning the Couture Techniques of Cristóbal Balenciaga in the Fashion Capital of the World

Tracy Jennings

In July of 2014, I spent a month studying abroad at the Paris American Academy. This presentation shows the process I went through to create a garment based on a design by Spanish couturier Cristóbal Balenciaga. His work was renowned for being meticulously created by hand, as well as for its ease of style. This particular dress is an A-line shift dress with a high-low hemline. It is unique in that it has only one seam, located at the center back. Through this process I learned several couture techniques, including how to drape a loose-fitting garment and how to finish armholes and necklines by hand so the lining is hidden. This presentation reflects how study abroad opened my eyes to the intricate work of classic couture and exemplifies how studying abroad can influence and inspire design students' creativity by exposing them to different skills, techniques, and design aesthetics.

Angelica Rubino

The Social Media Strategic Plan: Sassy's Original Boutique

Melissa Carr

Social media has taken over the retail industry. Retailers all over the world use it as a tool to connect and communicate with their customers on a personal level. In collaboration with Sassy's Originals, a women's clothing boutique in Bloomingdale, Illinois; the social media strategic plan determined the overall mission of the business, the goals, KPIs, and tactics, which could be used in order to plan and execute social media for Sassy's Originals in a beneficial and successful way.

Cody Sollis

Creating a Men's Brand: Blue Expression

Melissa Carr

When it comes to how we dress, we tend to use our style as a way to express ourselves and our personality. The company that we have created is called Blue Expression. We are a Chicago-based men's accessory line focused upon allowing men to be expressive with the way they dress. We offer patterned socks that give a little extra pop of color to the everyday wardrobe, ties with matching patterns, and pocket squares. When it comes to men's accessories, many men like to match the accessories such as their socks and tie. Such accessorizing is what we have incorporated into our designs.

Fiona Lynch

Acquiring Couture Techniques in Paris

Tracy Jennings

I completed a month long program at the Paris American Academy where I learned the couture construction techniques of Madame Grés. Madame Grés, a notable 20th century French designer, was well-known for her intricate pleating and draping skills. During the course of the program, I created a

hand-sewn dress based on the Madame Grés pleating method. Through that process, I discovered the expertise and quality craftsmanship that goes into creating couture garments. The experience of studying abroad opened my eyes to fashion in the global environment and gave me more insight into the world of haute couture. This has improved my design aesthetic to include inspiration from notable international designers and has motivated me to focus more on details such as fit, pleating, and hand stitching.

Psychology

Jordan Krikie, Brian Manjarrez, Abel Orizaba and Anissa Calvin

The Effect of Physical Appearance on Job Selection

Tina Taylor-Ritzler

We are taught that employment is based on our skills, educational achievement and work experience, and that if we work hard, it will pay off and we will find a job in our field. However, past research has shown that aesthetics play a huge role in job selection as well and sometimes our appearance, including factors like attractiveness, skin color, and tattoo status are the deciding factors in getting a job. The current study extended research on skin color and tattoo status. Participants were selected by recruiting those who were in Psychology 101, through social media, and through advertisement of the study. We varied the skin color of a job applicant (black/white) and tattoo status (tattoo/no tattoo). We asked participants to rate the qualifications of the applicant and indicate whether they themselves would hire the applicant. We found no effect of skin color or tattoo status on job selection, showing that there was no difference between the white applicant and the black or the tattooed or not-tattooed applicant on job selection. We also did not find an interaction between skin color and tattoo status on job selection. We suggest further research to shed more light on this issue and work to have a better understanding of the effects of our aesthetics on our ability to get a job.

Kevin Maisel, Natalie Vega, Katherine Aguila and Rodolfo Renteria Class Project

Ambient Belonging Between Genders

Tracy Caldwell

Can objects in a classroom make a person feel welcomed or out of place? Psychologists pondered the same question in their research. The team used a convenience sample of 43 participants and placed them in one of three conditions (masculine, feminine, or control). For each of the rooms the team hypothesized that the stereotyped gender related items would have an effect on how a person felt in the room. The preference he or she would choose would have an influence on their college major. When the team conducted their study, they found very little difference in the interest of such majors, including psychology, between males and females while in the male and female classroom conditions. The findings were not statistically significant. There was slight difference between the two genders and their interest in psychology.

Kimberly Mathes

Young Marriage and Domestic Violence: Why Do Some Women Believe Domestic Violence is Acceptable?

Tina Taylor-Ritzler

Domestic violence is defined as the willful intimidation, physical assault, battery, sexual assault, and/or other abusive behavior perpetrated by one intimate partner against another. One in every four women

will experience domestic violence in her lifetime (National Coalition Against Domestic Violence, 2014). With data provided by UNICEF, I compared attitudes on domestic violence around the world and the percentage of girls married before they turn 18. My results showed a positive, strong correlation between young marriage and acceptance of domestic violence. As a global community we need to educate girls around the world and put an end to domestic violence and the acceptance of it.

Shannon Parsons, Paulina Wojtach and Yesenia Peyret

The Effects of Health Claims and Cost on Consumers' Satisfaction

Tina Taylor-Ritzler

In order for products to be successful and profitable it is essential to first understand the market you are appealing to and what exactly that group of individuals is looking for in a product. Past research is contradictory on whether health claims or cost have effects on taste perception. This 2x2 within-subject experiment is a replication of a study done by Di Monaco, Ollila, and Tuorila (2005), testing whether health claims and/or cost have effects on perception of taste, as well as if there is an interaction on taste. After analysis of the data, the hypotheses were supported for the main effects of health claims on taste and of cost on taste, but there was no significant interaction. More research is necessary to better understand the variables that can affect the perception of taste.

Justin Wheeler and Gabrielle Lehmann

A Manipulation of Facial Expressions: Testing the Facial Feedback Hypothesis

Rebecca Pliske

The facial feedback hypothesis was proposed as the idea that facial expressions can affect the intensity of emotions experienced by individuals, as in the example of finding pleasant stimuli more pleasant, or cartoons funnier while smiling. This study is a conceptual replication of a study by Strack, Martin, and Stepper (1988) that tested the effect of facial expression on ratings of humor by making participants hold their mouths in certain positions mimicking a smile or a frown. For our study, the control condition was adapted from a study by Soussignan (2002), in which participants held the pen in their mouth in a neutral expression as they rated pleasant images. No effect was found for facial expression on humor ratings. It is possible that our manipulation was weak, resulting in the lack of an effect. More sensitive techniques may be necessary in future tests of the facial feedback hypothesis in order to increase the chances of finding an effect. IRB CP 13-02

Communications Arts & Sciences

Emily Patterson Senior Thesis

Unwritten Metaphors: A metaphor criticism method analysis of "Unwritten" by Natasha

Bedingfield

Jennifer Dunn

For this project, I plan to conduct a metaphoric rhetorical criticism of the song "Unwritten" by Natasha Bedingfield. The purpose of this type of criticism is to learn how the metaphors in the song communicate particular meanings. For my presentation, I will present the results of my analysis. I hope that my analysis will help us to better understand how music influences audiences.

Monika Stepkowski and Carmen English Degree with Distinction Project

Virtual Romance: Digital Communication Technologies in the Development and Maintenance of Romantic Relationships

CarrieLynn Reinhard

What is the best way to utilize the media we have available to us now to help and not hinder romantic relationships? The way we communicate with significant others changes with the use of different media. Depending on the type of media used, media can have huge effects on romantic relationships, both positive and negative. As little as ten to fifteen years ago, we did not use texting as a common means of communication. In this modern time, texting has become the norm for communicating, along with various other social media sites. Because you are not face to face, it is easy for words to be misconstrued. By doing this research, we not only recognize the problems we face with media, but come up with potential ways to avoid them. This presentation focuses on the rationale for this research and suggests how to study the issue of the impact of how we communicate on our romantic relationships.

Digital Cinema & Photography

Cruz Rodriguez Independent Research Project

Exploration of Cinemagraphs

Javier Carmona

The modern medium of Cinemagraphs combines the narrative possibilities of video with the stillness of photography while only existing on a digital platform. Cinemagraphs have only been prevalent within the last few years and the possibilities of their use are still being explored. Photographer and Digital Cinema student, Cruz Rodriguez, combines his two areas of study to explore the process and effectiveness of Cinemagraphs as an art form. Rodriguez, uses this new format of visual art to communicate ideas of his own artistic practices and concepts while also focusing on the technical process that is required to create the works.

10:30 a.m.

Biology

Lirije Milla Independent Research Project

The Cardiac Implications of Chagas Disease

Margaret Jonah

A parasitic disease that made its debut in 1909 in Brazil and has spread to affect over 10 million people throughout the Americas is Chagas disease, also known as American Trypanosomiasis. Chagas disease is endemic throughout much of Mexico, Central America, and South America. However, due to the increase in treatment efforts and increase in awareness the transmission and incidence has begun to decrease. Historically this disease has greatly affected the poor in rural areas. However, due to increases in travel and migration, it has spread to urban areas as well (Hidron et al.) As a result of these changes it has been difficult to interrupt vectorial and transfusional transmission. Infections can occur via mother-to-baby (congenital), contaminated blood products (transfusions), organs transplanted from infected donors, laboratory accidents, or even contaminated food or drink, although the last form of transmission is rare with this disease.(Hidron et al.) In the case of Chagas disease, prevention is key and

it is the most promising way to stop this disease in its tracks. The focus of my research has been on prevention techniques, cardiac implications of Chagas disease and current treatment options.

Kamila Babiarz, Amanda Bell, Jeewanjot Grewal and Patrick Gawronski

Transcriptional control of ApCEBPgamma in Aplysia californica long-term sensitization

Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural circuits encoding a long-term memory. Sensitization of the Aplysia tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail- sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in Aplysia. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in ApCEBPgamma mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

Monica Tamrazi, Yumna Akhlaq and Brenda Silva

Small World Initiative: Soil Bacteria

Scott Kreher

Traditionally, when a person is infected with a bacterium, an antibiotic is prescribed. However, different bacteria have been gaining resistance to antibiotics much faster than the rate of antibiotic discovery. In the U.S., the Center for Disease Control reported that over 2 million people attained severe infections and at least 23,000 individuals died as a direct result of infections (CDC, 2013). As a result of the health crisis, the Small World Initiative teamed up with universities, such as Dominican, to look for trends in microbes that produce antibiotics, and to examine areas where antibiotic production is common in soil microbes. In our experiment, we examined soil collected from Thatcher Woods and the grotto. Bacteria were extracted from the soil and cultured in a petri dish to screen for antibiotic producers. Two of the bacteria cultured were found to be antibiotic producing.

Eileen Moery, Nataly Velasquez and Adrian Stolecki Honors Project

Transcriptional Control of APEgr Transporter in Aplysia Californica Long-Term Sensitization

Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural circuits encoding a long-term memory. Sensitization of the Aplysia tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail- sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in Aplysia. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in APEgr transporter mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

Jillian Metcalf, Nicole Fledderman, Catherine Napierala

Transcriptional Control of ApCREB1 in Aplysia Californica Long-Term Sensitization

Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural circuits encoding a long-term memory. Sensitization of the Aplysia tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail-sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in Aplysia. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in ApCREB1 mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

Nicholas von Schrott, Catherine Conte, Reginald Jones, Ali Shariff, Ammar Sunbulli, Cora Tassone and Denisa Yzeiraj

Protonophore Uncoupling of Oxidative Phosphorylation: The Mechanism of 2,4-dinitrophenol as an Inhibitor of ATP Synthesis and Weight Loss Supplement

Daniela Andrei

Eukaryotes capable of aerobic respiration are known to generate the bulk of their ATP from the mitochondrial metabolic process known as oxidative phosphorylation: the phosphorylation of ADP to ATP by ATP synthase. Essential to oxidative phosphorylation and the actions of ATP synthase is the existence of a proton gradient between the mitochondrial intermembrane space and the mitochondrial matrix. This proton gradient is created through the actions of the electron transport chain in a series of redox reactions. In this manner, oxidative phosphorylation and the electron transport chain are described as being coupled. The uncoupling of these two processes by the actions of protonophores, such as 2,4-dinitrophenol (DNP), is known to disrupt oxidative phosphorylation and thus decrease ATP production through the disruption of the mitochondrial proton gradient. Insufficient ATP available for the operation of cellular machinery accelerates the oxidation of glucose, drives the β -oxidation of fatty acids, and subsequently leads to increased oxygen demand, hyperthermia, and weight loss. Although DNP succeeds in inducing weight loss, its use is also notoriously dangerous due to its narrow therapeutic index. Through a review of the literature, we describe the mechanism through which DNP acts as a protonophore and modulator of cellular respiration while examining trends in the use of DNP, although illegal for consumption in the US, as a diet aid and bodybuilding supplement.

Ryan Zifra Independent Research Project

The Search for Novel Antibiotic Production by Soil Bacteria

Scott Kreher

The purpose of this study is to discover and identify bacteria living in soil that may be producing novel antibiotics effective against agents that are resistant or difficult to treat with the current spectrum of available antibiotics. The majority of the antibiotics in use today are derived from soil bacteria. While many of these antibiotics have provided effective treatments for many bacteria-related infections, there

are certain strains of infectious bacteria that have developed resistance to the antibiotics that are currently available. The vast majority of these antibiotic-resistant bacterial strains are represented by the ESKAPE pathogens. The pathogens pose a significant risk to an infected host due to the lack of effective treatment against them. There is a considerable need to develop treatments against these pathogens, and a likely source is novel antibiotics derived from undiscovered soil bacteria. In this study, several bacterial strains isolated from a soil sample were tested for antibiotic production against victim strains closely related to the ESKAPE pathogens. Those found to inhibit growth of victim strains were analyzed further using different culturing methods, DNA sequencing, and the extraction, purification, and analysis of the organic metabolites being produced. The identification of a novel antibiotic effective against one or multiple ESKAPE pathogens from these analyses could prove invaluable to the treatment of acute bacterial infections.

Rocio Aguilar, Joseph Korziuk and Francisco Salas

The Effects of Long-Term Sensitization on the Transcription of C/EBP, Spectrin and Glycine Transporter Genes in Aplysia californica

Irina Calin-Jageman

The animal studied was marine mollusk, *Aplysia californica*, a sea slug that lives primarily along the coast of California. *Aplysia californica* was specifically used because of its lateralized and simple nervous system, their conveniently large neurons, and finally, because they have a fully sequenced genome that reduces the hassle of analyzing the data that is acquired. Although, the *Aplysia* nervous system has differences to a human brain, the purpose was to observe how behavioral training by sensitization changed transcription to store memory. *Aplysia* was used in order to see if sensitizing one side of the slug, in this experiment the left side, resulted in long-term memory formation and to observe if any changes occurred with the C/EBP gene. Apart from the study on C/EBP, we conducted the experiment to observe the effects of sensitization on the spectrin and glycine transporter genes.

Catherine Conte, Brooke Hebert, Madeline McMullen and Caitlin O'Brien

Transcriptional control of ApCREB2 in Aplysia californica long-term sensitization

Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural circuits encoding a long-term memory. Sensitization of the *Aplysia* tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail- sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in *Aplysia*. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in ApCREB2 mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

Anita Szuba, Lizbeth Bandera and Mason Solbrig

Transcriptional control of ApLLP in Aplysia californica long-term sensitization

Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural circuits encoding a long-term memory. Sensitization of the *Aplysia* tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail-sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in *Aplysia*. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in *ApLLP* mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

Araceli Lazcano, Nader Ismail, Sylwia Gajdek and Janaie Burnside

*Transcriptional control of *Apc-Jun* in *Aplysia californica* long-term sensitization*

Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural circuits encoding a long-term memory. Sensitization of the *Aplysia* tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail-sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in *Aplysia*. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in *Apc-Jun* mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

Radhika Patel, Saman Kamal, Karolina Kir and Patrycja Matel

Mad Cow Disease

Bindiya Kaushal

Mad cow disease, or Bovine spongiform encephalopathy (BSE), is a devastating cattle brain disease resulting from misfolded proteins, or prions (CDC 2013). Prions aggregate in and destroy nervous tissue, including the brain and spinal cord (2013). These contagious prions are resistant to disinfectants and enzymatic treatments (USDA 2014). In addition to its deadly impact on cows, consumption of beef with BSE has been linked to variant Creutzfeldt-Jakob disease (vCJD) in humans (CDC 2013). With the recent confirmation of a BSE case in Canada (Begley 2015), further study of the protein misfolding that causes this disease has become imperative to maintain the safety of American beef consumers. This poster examines literature available on prions and BSE to evaluate the current state of prion research and make suggestions for further projects.

Dalal Abuaqel, Caitlen Foote, Mosam Amin and Samantha Petkofski

*Transcriptional control of *APGlycine transporter* in *Aplysia californica* long-term sensitization*

Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural

circuits encoding a long-term memory. Sensitization of the *Aplysia* tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail-sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in *Aplysia*. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in APGlycine transporter mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

11:30 a.m.

Chemistry

Daniela Vaccarezza, Matilda Koivogui, Nicole Fledderman and Amanda Bell

Biochemistry of Folate

Bindiya Kaushal

This poster explores the biochemistry behind folate, with an emphasis on pregnancy, cardiovascular disease, and depression. Folate, and its synthetic form—folic acid, is a water-soluble, B vitamin essential for several bodily functions, such as cell division and growth. It is naturally found in dark, green leafy vegetables, legumes, and citric fruits. Deficient levels of folate may lead to abnormalities in biochemical pathways. Folate reduces levels of homocysteine in blood, a cardiovascular risk factor, prevents neural tube defects during pregnancy, and is clinically linked to depression.

Danielle Gilbert, Karen Alvarez, Chinelo Agwuncha, Jeewanjot Grewal, Anayeli Aguilar and Marbeya Berner

Hemoglobin Stability and Its Implications

Daniela Andrei

The issue of protein stability has become a major topic in biotechnology, particularly influencing the recent discovery of the technique to stabilize hemoglobin. By wrapping a polymer around hemoglobin, a team of scientists from the University of Connecticut was able to avoid the denaturation of hemoglobin, even under extreme conditions. With a successful stabilization of proteins, particularly hemoglobin, scientists may be able to develop more stable vaccines and artificial blood substitutes. By wrapping a protein in a polymer chain, the entropy is restricted, making the protein less likely to denature. The polymer, poly(acrylic acid), was chosen for hemoglobin as it is highly abundant, inexpensive, and naturally binds to hemoglobin. As the polymer binds to the hemoglobin, a tight seal is formed. Exposed to temperatures above 120°C, this seal acts to protect the molecule and its structural integrity from denaturing. The hemoglobin wrapped in polymer was able to maintain its structure and function significantly more than the control group, which was not wrapped with polymer. With these breakthroughs, scientists are now looking into techniques to safely stabilize the toxic pure form of hemoglobin to be able to use as artificial blood for transfusions during blood shortages.

Jelena Bulatovic, Elena Benitez, Ashley McDonald and Eva Wszolek

Vitamin D: Synthesis, Functional Role and Deficiency

Bindiya Kaushal

Our group will focus on Vitamin D. Specifically, we will place emphasis on its synthesis on a molecular level, but also highlight the pathologies that result from vitamin D deficiency vs. too much vitamin D. For instance, vitamin D is necessary for Calcium absorption from the intestines. Calcium composes bony matrix and plays a major role in several biological systems. Lack of calcium from vitamin D deficiency could lead to muscle spasms amongst other symptoms. We will elaborate on such effects from bodily levels of vitamin D.

Karen Alvarez Independent Research Project

An Investigation into the Impact and Effects of Sugar Content in Commercial Juice Beverages

Kathleen Nebril-Schmidt

High intake of sugars has been associated with diabetes and other health issues that will be explained in this research. A laboratory analysis of sugars in commercial fruit beverages is examined using the methods of Fourier Transform Infrared spectroscopy (FTIR) and refractive index. Sugars of fructose, sucrose, and glucose generate differences by both methods which will be presented. Additionally, information into the physiological response to these sugars as compared to high fructose corn syrup will also be outlined. The differences in both organic and genetically modified juice products will also be presented.

Liliana Cruz, Rocio Aguilar, Jaime Torres, Joseph Korziuk and Francisco Salas

Nicotine and Neurodegenerative Diseases

Bindiya Kaushal

Nicotine, an organic molecule, occurs naturally in the solanaceae family of plants, particularly tobacco. In the body it acts as a stimulant drug and is a nicotinic acetylcholine receptor agonist. There has been controversy regarding this molecule due to the fact that its main mode of transmission is through the smoking of cigarettes which poses significant health risks. Although nicotine has properties that encourage dependence, recent studies have shown that by activating nicotinic receptors in the brain, nicotine could delay the process of neurodegenerative diseases. It is believed that the common neurodegenerative diseases such as Alzheimer's and Parkinson's disease share pathological mechanisms. More specifically, nicotine has been shown to mediate protection against neurotoxicity induced by beta-amyloid, glutamate, rotenone, and 6-hydroxydopamine. Continued research into nicotinic pathways may pave the way for treatments involving nicotine that prevent further degradation of neurons in patients with neurodegenerative diseases such as Alzheimer's and Parkinson's without having patients subjected to tobacco which contains several other chemicals known to be detrimental to patients' health.

Jennifer Santin Independent Research Project

The Environmental Impact of Pollutants in Urban Chicagoland

Kathleen Schmidt-Nebril

The chemical, biological, and physical processes involving pollutants in the environment impact a number of atmospheric and biogeochemical cycles. The accumulation of pollutants is a global environmental concern, and their impact depends not only on their total concentration, but also on their ability to disrupt public health. Using standard methods of research and analysis an investigation of pollutants in the Chicagoland urban environment will be evaluated. The research obtained is expected to show a multidisciplinary link which focuses on the consequences of human activities and their implications for human and ecological health.

Erica Weismann, Christina Cho and Ryan Ziffra

DNA Methylation and Chromatin Remodeling

Bindiya Kaushal

The processes of DNA methylation and chromatin modeling are at the core of the field of study known as epigenetics. Epigenetics describes long-term changes in the transcriptional potential of cells that are not caused by changes to the DNA sequence. While many of these changes are heritable, some are not. Chromatin is the DNA-histone complex, in which the DNA can be wrapped around the histone protein in different ways. The specific way in which a segment is wrapped affects gene expression of the region. Post-transcriptional modification of the amino acids in histones can alter their shape, preventing the DNA from fully unwinding during replication. These modifications can be heritable and can also cause modifications in surrounding histones. Different modifications of histones and how they affect transcription will be explored. Another way in which transcription is affected is through DNA methylation. This occurs when a methyl group binds to a cytosine at a CpG site, converting the cytosine to 5-methylcytosine. Areas of the DNA sequence that are more heavily methylated are less transcriptionally active. Often times, methylation occurs in repeated sequences and affects the mobilization and expression of transposable sequences in the DNA. The 5-methylcytosine molecule can be easily mutated, which has caused CpG sites to become rare and created permanent heritable mutations in the DNA. The mechanism and regulation of DNA methylation will be discussed.

Katie Heiden Independent Research Project

An Investigation of Heavy Metal Pollutants in Urban Natural Water Systems

Kathleen Schmidt-Nebril

Heavy metal pollutants are an ever increasing problem in the environment often accumulating to toxic levels for both aquatic and human populations. High levels of these toxic metals may be associated with disrupting aquatic cycles of many species. They also have been shown to cause neurological damage in human populations. The purpose of this research is to analyze natural water systems in various locations in Cook and Kendall County areas for Copper, Cadmium and Chromium pollutant levels using atomic absorption spectroscopy. It is expected that these heavy metal pollutants will be detected in urban regions. The analysis of snow samples will provide an indication of atmospheric pollution levels while the analysis of natural waters will provide an indication of non-point source pollution levels.

Patrick Tednes Independent Research Project

Diazeniumdiolates as Nitroxyl (HNO) Donors: Synthesis, Characterization and Biological Properties

Daniela Andrei

Nitroxyl (HNO) donors have been shown to elicit a variety of pharmacological responses, ranging from tumoricidal effects to treatment of heart failure. Due to the fleeting nature of nitroxyl, dimerization and formation of N₂O, HNO must be generated in situ from donor compounds. Secondary amine diazeniumdiolate ions, are extensively used in biochemical, physiological and pharmacological studies due to their ability to slowly release nitric oxide (NO). However, primary amine diazeniumdiolates have been less studied. Herein, we report the synthesis, characterization and biological properties of several primary amine-based diazeniumdiolates. These compounds extend the range of known diazeniumdiolate-based HNO donors and were evaluated for the ability to inhibit growth and proliferation of ovarian cancer cell lines. Two compounds demonstrated reduced ovarian cancer cell proliferation when treated at doses from 0.033 – 1.0 mg/mL at 24 and 48 hour time points.

Katarzyna Zapotoczna, Adrian Paszek and Tyehimba Turner

Transcriptional Control of ApUch in *Aplysia californica* long-term sensitization
Irina Calin-Jageman

The formation of long-term memories requires long-term changes in gene expression, but it remains somewhat unclear how these transcriptional changes alter the activity and connectivity of the neural circuits encoding a long-term memory. Sensitization of the *Aplysia* tail-elicited siphon/gill-withdrawal reflex (T-SWR) has proven a powerful model system for exploring the genetic and physiological mechanisms of long-term memory. Long-term sensitization is known to enhance tail- sensory neuron excitability. Sensitization can be induced via trains of electrical shocks applied to the body wall of the animal. We utilized a shocking protocol that induces long term sensitization memory in *Aplysia*. Following sensitization, RNA is isolated from both the stimulated and non-stimulated sides of the animal and reverse transcribed. Semi-quantitative PCR is then performed to determine activity-dependent changes in ApUch mRNA levels. Results are expected to shed light on the transcriptional changes that alter sensory neuron physiology during long-term sensitization.

Karolina Kir, Jeewanjot Grewal, Christina Cho, Nicole Fledderman and Kathryn Swain 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. Using mutants of odor receptors, we have found that odor receptors with similar electrophysiological responses to odors across concentrations play non-redundant roles in odor coding at specific odor concentrations. We have also found that high affinity receptors for odors determine behavioral response thresholds, but the rules for determining peak behavioral responses are more complex. While receptor mutants typically show loss of attraction to odors, some receptor mutants result in increased attraction at specific odor concentrations. The odor receptor mutants were rescued using transgenic expression of odor receptors, validating assignment of phenotypes to the alleles. Finally, some odors that did not elicit strong electrophysiological responses are associated with behavioral phenotypes upon examination of odor receptor mutants. This result is consistent with the role of sensory neurons in lateral inhibition via local interneurons in the antennal lobe. Taken together, our results suggest a complexity of odor coding rules even in a simple olfactory sensory system.

Ericka Maciel, Kaitlin Haderspeck and Sandra Villagomez

Sucrose: Good or Bad?

Daniela Andrei

The purpose of this project is to explore sucrose and its effects on the mind and body. Sucrose, commonly known as table sugar, is a term for any short-chained, sweet tasting carbohydrate. Many foods regularly consumed by Americans are high in sucrose like brown sugar, maple syrups, nuts, melons, carbonated drinks, and puddings. It is important for people to be aware of what they are consuming and what effects it has on the body and what diseases may result from their diet. In this poster, we will discuss the results of research found through experiments on lab rats and humans to

determine whether or not a high sucrose diet is beneficial or detrimental to one's body weight, body composition, hepatic enzyme content, and stress tolerance. In addition, this project will also explore the effects of replacing sucrose with artificial sweeteners. Our question still stands: is it good or bad?

Nicole Heiberger, Monica Tamrazi, Ryan Kleinert, Nikita Sawlani and Krystian Drozd

Hypoventilation and Hyperventilation

Bindiya Kaushal

Breathing is a natural phenomenon of the body. Humans breathe in to renew oxygen levels and reduce carbon dioxide levels. There are, however, times when the balance of oxygen and carbon dioxide is not kept. When there is excessive breathing, the body takes in more oxygen and creates low levels of carbon dioxide. This scenario is called hyperventilation and leads to respiratory alkalosis. When the body has increased levels of carbon dioxide and low levels of oxygen, it is called hypoventilation, which leads to respiratory acidosis. Hypoventilation and hyperventilation are two medical conditions that demonstrate the affects of buffers and pH in the body. Treatments for both conditions are limited in effectiveness and do not act as onset preventatives.

Lisa Alexander, Sadarhie Hyman and Rob Morrison

Lipid Soluble Vitamins: Vitamins A, D, E, and K

Bindiya Kaushal

We will be looking at the fat-soluble vitamins, vitamins A, D, E, and K, and their role in human physiology and maintaining health. This will include the ways in which we obtain these vitamins from the diet and how they are assimilated into the body. We will explore how and if they are stored and how they are utilized. We will also examine their structure and chemical properties. We will go in depth about the influence of these vitamins on maintaining human health. Our discussion will also examine the benefits and harms that result from taking these vitamins as dietary supplements and the alternatives that may exist, including herbal remedies and treatments. To further our understanding of the importance of these lipid-soluble vitamins, we will also delineate the negative effects of having a deficiency in one or more of these vitamins.

Rielle Sacco, Alvin Onyewuenyi, British Fields and Chase Salazar

Sickle Cell Anemia

Bindiya Kaushal

Sickle cell anemia is an autoimmune disease that is due to an amino acid substitution of valine instead of glutamic acid on the beta chain of hemoglobin producing hemoglobin-S. Hemoglobin is made of four polypeptide chains, composed of two alpha chains and two beta chains. This substitution does not allow oxygen to properly transport throughout the body and creates a sickle appearance of a erythrocyte instead of the round bi-concave disk. Although this substitution may seem small, the effects are detrimental. Sickle cell anemia is the most common inherited blood disorder and is more prevalent in Sub-Saharan Africa. It occurs in 1 in every 500 African Americans. Approximately 1 in 12 African Americans have the Sickle Cell trait. Common symptoms include sudden pain throughout the body, including the bones, lungs, abdomen, and joints. These symptoms occur when the sickle shaped cells obstruct blood flow to the limbs and organs. This pain can be acute or chronic. Other symptoms include vision loss, headache, shortness of breath, and weakness in the extremity. Even though there is no cure, bone marrow transplants offer the only potential cure for this disease. The procedure has serious risks,

however, including death. Alleviation for sickle cell includes antibiotics such as Droxia and Hydrea to reduce painful crises, blood transfusions, oxygen therapy, and fluids. Genetic counseling plays an important role in the proper planning and prevention of this disease.

Adrian Paszek, Gursher S. Rathore, Jessica Lewinski, Andrew A. Meissen, Lirije Milla and Patrick Piwowarczyk

Chemical Composition of Tears

Daniela Andrei

The accumulation of tears in the eyes carries out multiple functions. Tears expel foreign particles, keep the cornea wet and nourished, and also serve to release an emotional response. Crying is the emotional response to particular feelings, including but not limited to sadness and joy. It has been documented that the chemical makeup of emotional tears differs than that of basal tears, which lubricate the eye; and reflex tears, that result from optic irritation. Scientists have further identified that emotional tears contain a higher proportion of very distinct molecules such as prolactin, adrenocorticotrophic hormone, leucine-enkephalin, and certain chemo-signals. There is an established physical connection between the lacrimal gland and areas of the brain involved with emotion, suggesting that there is a biochemical purpose involved. A biochemist by the name of William H. Frey II believes that emotional tears serve as a means to reduce stress and release toxins from the body, while other scientists propose an evolutionary meaning. Further research is needed to determine the identity of these compounds and if the signals differ as a result of the nature of the stimulus of the tears. Our intentions are to further understand the makeup of the different types of tears, as well as the correlation, if any, between the composition of emotional tears and the preceding emotional stimulus.

Nader Ismail, Alexander Hernandez, Katie Heiden, Laura Knieps, Angel Juarez and Katarzyna Krutul

Vitamin D: Biological Function and Deficiency Effects

Daniela Andrei

Vitamin D refers to a group of fat soluble molecules whose deficiency is implicated in many bodily disorders. Vitamin D is consumed in the diet only rarely, but produced most often by the body upon skin exposure to sunlight. Once present in the body, Vitamin D enhances absorption of minerals in the small intestine, and may play a role in immune function. Vitamin D deficiency is recognized as a pandemic. Lack of sun exposure combined with insufficient dietary intake of Vitamin D are the main causes of widespread Vitamin D deficiency. In children, vitamin D deficiency most often causes the bone disorder rickets. In adults, Vitamin D deficiency can lead to many bone diseases among other chronic disorders. Furthermore, regimented Vitamin D intake is associated with a decreased risk of developing certain cancers. It is estimated that there is a 30 to 50% decrease in risk for developing colorectal, breast, and prostate cancer. Our aim in this poster is to explore the association between vitamin D levels and the severity, mortality and microbiological cause of diseases associated with vitamin D deficiency. Moreover we hope that the information will serve to foster awareness of vitamin D and effects of its deficiency.

Amy Do Independent Research Project

Computational Investigation of Trends in Geometry and Physical Properties of a Series of Small Molecules

Nicolas Winter

Computer-assisted chemistry can be used as an aid to design new molecules for applications such as pharmaceuticals, electronics, or industrial processes. Computational chemistry techniques can be used to calculate molecular properties such as molecular geometry and dipole moment. In this project, a series of simple molecules are examined with a variety of computational methods ranging from molecular mechanics to fully ab initio calculations. The influence of periodic trends in atom size and electronegativity on molecular geometry are explored. The relationship between molecular geometry and dipole moment is examined. The various computational methods are compared to see which ones give the best agreement with experimental values.

Cara Watkins, Noelle Cegielski and Ashley Albarrah

A Closer Look At Vitamin C

Daniela Andrei

Vitamin C or L-ascorbic acid or ascorbate is an essential nutrient for humans and certain other animal species. Ascorbate and ascorbic acid are both naturally present in the body when either of these is introduced into cells, since the forms interconvert according to pH. It is important in the formation of collagen, the connective tissue of the skin. In animals, these reactions are especially important in wound-healing and in preventing bleeding from capillaries. The lack of vitamin C causes scurvy, an avitaminosis. Vitamin C has many polar bonds and many O atoms, making it a water-soluble vitamin. The United States recommended dietary allowance per day is 75mg for females and 90mg for males. Gooseberries, blackcurrants, strawberries, lemons, oranges, rose hip, and green chili pepper are just a few sources of Vitamin C. Our poster will focus on the chemistry, health benefits, results of deficiencies, and sources of Vitamin C.

Steven Jette, Morgan Clem, Matthew Moody and George Roman

The Biochemistry of Nicotine Addiction

Bindiya Kaushal

Tobacco dependence is attributed to nicotine addiction. Nicotine use leads to stimulation of the brain's reward system; chronic use leads to neurological adaptations. In the brain, nicotine binds to nicotinic acetylcholine receptors (nAChRs), activating neurons to produce effects in the mesolimbic reward system. These effects cause the release of excitatory neurotransmitters such as dopamine and glutamate, while simultaneously binding to GABAergic receptors, which normally function in inhibition but become desensitized to nicotinic effects through chronic use, thus leading to addiction. Of particular interest is the Ventral Tegmental Area in the midbrain, which contains certain nAChRs attributed to addiction. Moreover, nAChRs containing particular protein subunits are more susceptible to reinforcing nicotinic effects than others. Knowledge of these two concepts has led to the development of drugs that attempt to alter the release of these neurotransmitters and the structure of the nAChRs themselves in order to alleviate the symptoms of nicotine withdrawal.

Nicolle Chan, Jasmine Hill and Yevgeniya Sonkina

The Adverse Affects of Butter and Margarine

Bindiya Kaushal

Butter and margarine are two very common foods consumed in the American diet. Butter is made from animal fats and margarine is made from vegetable oils. They have different chemical structures that affect the human body. Margarine is higher in polyunsaturated and monounsaturated fats which helps reduce low density lipoprotein (LDL) cholesterol. This is an advantage since most heart disease begins

with atherosclerosis and the build-up of plaque in the arteries. Although margarine is healthier than butter, margarine sold in supermarkets can vary from healthy to unhealthy. For example, solid margarine contains more trans fats which can increase blood cholesterol level due to the partially hydrogenated properties. The liquid margarine on the other hand, does not have trans fats. Many experiments have been conducted to understand the benefits and risks of choosing butter or margarine. According to an article by Harvard Heart Letter, butter is the worst option followed by solid margarine. The study recommends consuming liquid margarine.

Swapna Shanmugavelayutham, Emily Green, Eunice Brobby and Victoria Solimeme

Current Developments in Artificial Pancreas Technology

Bindiya Kaushal

Type I diabetes is an insulin-dependent form of diabetes. The treatment for Type I diabetes is regular insulin injections. Patients must use several means to control the amount of insulin in their blood. These tests and measurements can be intrusive and painful. The advent of artificial insulin was a significant step toward control of Type 1 diabetes. The result of recombinant DNA biotechniques, synthetic insulin is used by millions to control the body's blood sugar levels. Diabetes technologies, however, reaches a new peak with the development of pancreas-mimicking tissues, pumps, and biotechnological implants. The effect of these developments is multifold. Severe hypoglycemia occurs mostly at night. Monitoring glucose levels at night is extremely important but challenging. An automated artificial-pancreas system is suggested to control the amount of insulin provided and the timing of the insulin delivery. Patients who were given this artificial pancreas resumed normal activities and reported having less symptoms. Hypoglycemia is threatening in the short-term. The human body is sensitive to the deviation from 70 mg/dl, and when hypoglycemia occurs, the body responds with a variety of symptoms such as rapid heart rate, headaches, weakness, fatigue, and seizures. Future developments involve changes in current models to produce a faster response to avoid the dangerous consequences, short and long term, of hypoglycemia.

Daniela Vaccarezza Independent Research Project

The Effects of Periodontitis on Kidney Inflammation Using an Animal Model System to Determine Presence of (IL-1 β)

Bindiya Kaushal

Periodontitis is caused by most inflammatory responses and periodontal pathogens. An excessive amount of cytokines which cause inflammation are present. The infection and inflammation that occurs in the periodontium may spread and affect other organs in the body such as the kidneys. The objective of this study is to determine the effect of periodontitis on kidney inflammation using an animal model system that is prone to developing type 2 diabetes mellitus (T2DM). In order to observe the effect of periodontitis on kidney damage, histopathological analysis is done using a Zucker Diabetic Fatty Rat (ZDF) model system which stimulates human obesity and T2DM. The purpose of this study is to determine the presence of cytokines, specifically Interleukin1-beta, which plays an essential role in cell signaling and a mediator in inflammation. We hypothesized; the cytokine Interleukin 1-beta will be present in various cells such as mesangial glomerular, podocytes, endothelial and epithelial cells. The presence of IL-1beta will be more prevalent in the group of rats which were induced with periodontitis and fed a high fat diet, because it has been determined that a high level of glucose does stimulate the production of IL-1beta in another study involving pancreatic islet cells.²⁵ The results obtained are preliminary data. We have observed that the Low-fat/control group has higher IL-1beta expression compared to the Low-fat/ periodontitis group.

Global Learning Symposium Posters

Parmer Atrium

12:30 p.m.

Gabrielle Lehmann, Alexandra Kopot, Alyssa Davis and Brandt Bechard

Drawing on Florence, the City as Renaissance Text

Jeffrey Cote de Luna

During the summer of 2014, we had the opportunity to study abroad in Florence, Italy. The month was spent visiting a number of beautiful and famous sites, learning about the history of the Renaissance as we drew upon our surroundings for inspiration. Student skill with drawing ranged from beginner to advanced, and each student was responsible for creating a series of pastel drawings of the locations we visited. A selection of these drawings are available for viewing, along with some photos of places we visited on the trip. Students will be present to answer any questions about the artwork and our overall experience studying abroad in Florence.

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 Professor Noelle Allen, Interim Director of URSCI at nallen@dom.edu or Professor David Perry, Director of URSCI 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. This directed undergraduate research or creative investigation culminates in a conference presentation, journal article, or other creative/scholarly project. *Students must obtain prior approval from a faculty mentor before they can register for any of these independent research courses.* Each course can be completed for variable credit hours (1-3) and can be repeated for two semesters at each class level. Students are encouraged to present their independent scholarly and creative work at the annual Exposition of Undergraduate Research, Scholarship and Creative Investigations that is held each spring.

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. In a typical semester, four awards are funded.

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

The RCAS Undergraduate Research Assistantship Program (URAP) funds students who assist full-time undergraduate faculty in their scholarship. This program is intended to provide students with a substantive intellectual experience; that is, student assistants are not to be used as general clerical help. Assistants can help in areas such as library research, data collection and analysis, preparation of manuscripts, etc. Students can earn up to \$1500 per semester. A full-time, tenured or tenure track undergraduate faculty member identifies a qualified student and submits an application that describes the proposed scholarly project. Awards are granted on a competitive basis at the end of each semester for work to be completed the following semester. In a typical semester, five assistantships are funded.

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.

Departmental 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 superior 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. The faculty in the discipline approves the project, and the project supervisor and the second reader recommend the project to the Honors Committee in early March of their junior year. The project is completed in the spring of the student's senior year. A project in an interdisciplinary major or one which is interdisciplinary in emphasis is submitted with prior approval from faculty from the most relevant disciplines. A student majoring in a discipline in which Dominican has only one full-time faculty member should seek approval of both project and proposal from a second faculty member who is a member of the major department or a faculty member from a related discipline in another department, whichever is more appropriate for the project. Students must meet the following requirements to be eligible: junior status and a cumulative grade point average of 3.25 in the field of the project and an overall grade point average of 3.0. If the student's proposal is accepted, the student must 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 on Blackboard at the departmental honors project site, or from the Directors of the Honors Program.

Honors Projects. Students in the Honors Program undertake honors projects leading to a bachelor's degree with honors in the student's major. The process for completing the project is the same as for the Degree with Distinction. Additional information regarding the Honors Program is available in the Office of the Dean of Rosary College of Arts and Sciences, or by contacting Professor Mickey Sweeney.

Global Learning Opportunities at Dominican University

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. With the Office of Career Development, 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.

Model Campus Engagement with Interfaith Youth Core (IFYC)

Through this partnership with IFYC, the university has launched several promising initiatives to foster cross-cultural civic engagement. Those efforts include a fast to raise consciousness about relief efforts for Haiti and a “speed faithing” event at which hundreds shared what they value in their religious, spiritual or values-based traditions and reflected on what is necessary to talk meaningfully with those of differing beliefs.

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 School of Education mentors students for an enduring commitment to social justice and enriching diversity, and 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 take their scholarly endeavors 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: Rahel Bokretzion, Irina Calin-Jageman, Dr. Louis Scannicchio, Joseph Sagerer, Brent J. Friesen, Jennifer Bathgate, Derrick Hilton, Scrott Kreher, Hippolyte Datte, and Carol Blindauer. We appreciate your generosity and support of our efforts to promote undergraduate research.

We also thank Pete Peterson, Information Technology; and Tina Weinheimer, Becky Lopez, and Ryan Pagelow Office of Marketing and Communications, for their help in processing applications and preparing the URSCI and GLS program. Appreciation also goes to Dave Carlson, Scheduling and Events Services and Samella Johnson-Hargro, Maintenance, for their help in the Expo organization and set-up, and to Shawn Nykaza, Chartwells Catering, for the day’s refreshments.

We would like to acknowledge the faculty members of the Honors Committee for all they do to promote undergraduate scholarship at Dominican University: Co-chairs Mickey Sweeney and Clodagh Weldon, Dave Aron, Penny Silvers, Richard Woods, Lisa Petrov, Paul Coe, Richard Clegg, Joe Heininger, Carissa Buber, Marie Masterson, and Jeffery Carlson.

We would also like to recognize the members of the URSCI RCAS Committee who give so generously of their time to ensure the continued excellence of URSCI initiatives: David Perry, Dianne Costanzo, Rogelia Ibarra, Sara Quinn, Ning Zou, Tracy Jennings, Marie Masterson, Kathleen Mullaney, and Anjali Chaudhry.

For the third year, the AEC sponsored a workshop series to better prepare students to give URSCI Expo and Global Learning Symposium presentations. Presentation topics were “Using PowerPoint to Support an Effective Presentation” by Jennifer Dunn (Communication Arts and Sciences); “A Crash Course in Design for Poster Presentations” by Bill Kerr and Jean Bevier (Graphic Design); and “Tips on Making an Oral Presentation” by Ric Calabrese (Communication Arts and Sciences). We would like to thank Andrea Sanchez, AEC office manager, and the faculty members who gave so generously of their time to coordinating and presenting these extremely beneficial workshops.

Finally, we thank Psychology Professor Daniel Beach and his wife Cynthia Jared for their support of the Jared-Beach Summer Scholar, and Rosary College of Arts and Sciences Dean Jeffrey Carlson, Associate Provost David Krause, Provost Cheryl Johnson-Odim and President Donna Carroll for their ongoing generous support of Undergraduate Research, Scholarship and Creative Investigations and Academic Enrichment Center initiatives at Dominican University.

For more information, please see the URSCI page at <http://www.dom.edu/departments/ursci/expo/> and the Academic Enrichment Center page at <http://www.dom.edu/aec> .