



# URSA

Undergraduate, Research,  
Scholarship and Arts.  
Benedictine University

## 2017 Oral Presentation Schedule

### 12:00-1:30 pm – Goodwin 321

- **Tabitha Pinchot, Kristine Kryca**

“Bilingual Packaging Study: The Effect of Full-Spanish Translation on Grocery Purchasing Behavior”

A private brand distributor in the food industry markets one of its brands in the southeast and in Texas. Given the high population of Spanish-speaking consumers in these areas of the country, the company includes information on the brand’s packaging in both English and Spanish. It is not yet known, however, whether this bilingual packaging provides a point of differentiation for the company in terms of how consumers perceive the brand. One grocery wholesaler says such packaging is hurting sales, while another, in Texas, says that bilingual packaging is a must-have. Therefore, a team of students in Benedictine University’s Institute for Business Analytics and Visualization is currently conducting a marketing research study to investigate the effect full-Spanish translation has on the packaging of the brand in terms of the purchase intentions of consumers.

*Faculty sponsor: Dr. Nona Jones*

- **Taylor Walthers, John Mathews, Rayan Zubi, Anthony Mirando**

“Coal Ben Business Process and Improvements”

This project explores the current process of serving meals at Coal Ben as well as the wait time of meals being received by students Monday-Thursday between the times of 6:30 pm-9:30 pm. Additionally, we will propose alternatives to provide more efficient services for students.

*Faculty sponsor: Dr. Deborah Cernauskas*

- **Stephanie Shambling, Patrick Thoreson, Kevin Dubes, Paul Liesen**

“Modelling and optimizing the roller coaster Raging Bull at Six Flags Great America”

The goal of our research is to construct and model the processes by which the Raging bull roller coaster at Six Flag Great America operates. We further extend the scope of this research by defining inefficiencies present in the base model, and strive to improve the processes in a future model. Our success is based upon the improvements shown in the future model relative to the base model.

*Faculty sponsor: Dr. Deborah Cernauskas*

### 1:30-3:00 pm – Goodwin 321

- **Paulina Piasecki**

“The New “Key to the City?” Examining Campaign Email Correspondence in the 2016 General Presidential Elections”

Traditionally, candidates in Presidential elections have used telephone calls, canvassing, and sent direct mail to collect donations and spread the word about their campaign message. These practices, however, have become outdated by the rapid developments in digital technology. This study aims to understand how Presidential

campaigns attempt to incorporate these new forms of digital communication with the goal of gaining campaign contributions. In this study, I performed a systematic content analysis of 594 emails sent by the two major party nominees of the 2016 general Presidential election. My findings indicate that neither campaign reliably used email correspondence to highlight their issue positions to potential voters. I did not find a pattern between news media coverage and email content, due to the great variability week to week in the number of emails sent by both campaigns. However, my findings do lend tremendous support to the notion that campaigns use digital correspondence as a vehicle to gather donations from potential voters.

*Faculty sponsor: Dr. Phil Hardy*

- **Rana Aquil**

“The Effect of News and Media Sources on People's Perception on Immigration Policies”

My project is a survey that looks at how people process news information. There are three experimental groups and one control group. There is a news article that will be read by the experimental groups and a sport's article that will be read by the control group. I'm still in the process of my collecting my data, so I have not arrived at any conclusions yet.

*Faculty sponsor: Dr. Phil Hardy*

- **Jake Brown**

“How College Students Interact Politically on Social Media and How They Gather News”

This is a project researching the way college students interact politically on social media and how they gather news. Data is being gathered from surveys filled out by a convenient sample of 250 college students. This survey will focus both on how much they use social media to receive news and how they interact with each other through that social media. One of the goals of the study is to measure the civility of these online discussions and how they differ from similar conversations and interactions one may have in the physical world. Before taking the survey, I will relay a brief summation about what the survey is about. All of the data has not yet been collected. My presentation would focus on my research and analysis of the data that has been gathered thus far.

*Faculty sponsor: Dr. Phil Hardy*

- **Paulina Piasecki, Nooreen Baig, Makayla Stapleton**

“Romantic Novels and their Impact on 21st Century Readers”

This proposal aims to discover the connection between romance novels and their audiences. Specifically, how do young adults react to this type of genre. In this proposal, the researches plan on using different literary and social theories, theories related to gender studies, queer theory, and the concept of masculinity, in order to understand the public's current attitude toward the romance novel. All of these theories present themselves in romance novels, and the researchers aim to analyze and present any connections between the audience of today and these complex social, psychological and literary theories. The proposal includes a prototype for a survey, which the researchers will use to collect data about the sample's views on the romance novel. The prototype will lead to the comparison of theory to data, which will allow the researchers to draw connections between the different theories and the perspectives of the participants.

*Faculty sponsor: Dr. Elizabeth Kubek*

### **1:30-3:00 pm – Goodwin 317**

- **Michael McNulty, Sama Mohammad, Javairia Hadi, Areeba Ali**

“Traffic Improvement at Chipotle”

Traffic improvement at peak periods in the day

*Faculty sponsor: Dr. Deborah Cernauskas*

- **Maria Chong, Anthony Sharp, Kejuan Glosson, Paul Noack**

“Ordering process for Jersey Mike's lunch optimization”

Using ExtendSim software application, we are designing a more efficient way to lessen waiting times during lunch hours (11 a.m. - 2 p.m.) from Monday through Saturday.

*Faculty sponsor: Dr. Deborah Cernauskas*

- **Younes Ibnatik, Armando Guzman, Cesar Valdez, Andrew Guibord**

“The Business Process of a Car Wash”

This presentation will show 2 business process models for a car wash. One will be the current model, and second one will be for the improved model.

*Faculty sponsor: Dr. Deborah Cernauskas*

### 3:00-4:30 pm – Goodwin 321

- **Omair Ali**

“Exploring Methods to Mitigate Greenhouse Gas Emissions in American Cattle Farming Systems”

Cattle farming has become one of the world’s largest contributors of global greenhouse gases (GHGs), which, combined, are the primary cause of global climate change. Specifically, cattle manure management, manure decomposition, and enteric fermentation are responsible for the by-production of methane and nitrous oxide, two prevalent GHGs that are ever-increasing in atmospheric content. I provide a review of cattle physiology, manure decomposition, and experiments that examine the effects of various dietary, chemical, genetic and management methods on GHG abatement strategies. These methods include: 1) anaerobic digestion to absorb methane in manure-storage facilities, 2) chemical treatment of cattle manure applied to soil to prevent nitrous oxide loss to atmosphere, 3) the use of selectively bred cattle with high genetic merit for production and metabolic efficiency, 4) experimentation of staple diets of varying forage quality to alter rumen microbiota functioning, and 5) treatment with benign dietary supplements to inhibit GHG production. Finally, I translate these mitigative methods to local strategies that cattle farms can use to reduce GHG output in economically-feasible ways.

*Faculty sponsor: Dr. Leigh Anne Harden*

- **Sumaiya Shahjahan**

“Hematological health and immune response of captive-reared re-released Blanding’s turtles”

The Blanding’s Turtles (*Emydoidea blandingii*) rely on natural wetlands and habitat loss due to urbanization has placed them on the IUCN red list of threatened species. Several states in the Midwest have implemented captive-rearing programs for the conservation of these turtles. Current research is focused on developing a framework of practices to maximize long-term survival of the Blanding’s Turtles post-release into the wild. This study is a part of a larger study investigating the effects of captive rearing on health, behavior, and survival of juvenile Blanding's. For this study, we are investigating physiological health post-release from captivity using a clinical health assessment. This includes leukocyte profiles, blood cell morphology and parasite load. Between May and October 2016 blood was drawn from 12 juvenile turtles monthly. Each month, one juvenile was selected and blood smears were made in triplicate. These blood smears were stained and heterophil to lymphocyte ratios were performed at a Benedictine lab. These ratios serve as an inexpensive proxy for chronic stress in juvenile Blanding's. This data was assessed and compared to previous metrics data to explore seasonal changes.

*Faculty sponsor: Dr. Leigh Anne Harden*

- **Sharyl Alendry**

“The Role of Extracellular Calcium and Exchange Protein Activated by cAMP (EPAC) in Bile Acid Action”

Inflammatory bowel diseases (IBD) occurs when intestinal epithelial barrier are disrupted by luminal contents such as bile acids. Previously we showed that primary bile acid, chenodeoxycholic acid (CDCA), but not secondary bile acid, lithocholic acid (LCA), increases Cl<sup>-</sup> secretion, and this involved cAMP. Here, we delineate the mechanisms underlying opposing roles of CDCA and LCA and examined the involvement of intracellular calcium [Ca<sup>2+</sup>]<sub>i</sub>. Cells in glass bottomed dishes were loaded with FURA-2AM, a dye that fluoresces in the presence of Ca<sup>2+</sup>, and [Ca<sup>2+</sup>]<sub>i</sub> measured using a NIKON microscope-based-spectrofluorimeter. We found that [Ca<sup>2+</sup>]<sub>i</sub> was increased by CDCA and only slightly by LCA. Furthermore, our studies showed that this increase is partly due to Ca<sup>2+</sup> coming in from extracellular stores for CDCA, but not for LCA. To study cross talk between Ca<sup>2+</sup> signaling and cAMP, a role for EPAC was studied. When EPAC was inhibited by ESI09, CDCA's effect on Ca<sup>2+</sup> was partly inhibited. Thus, CDCA, not LCA, acts by increasing Ca<sup>2+</sup> influx and this involves EPAC. Understanding the mechanism of bile acid action can help identify ways to ameliorate the symptoms of IBD.

*Faculty sponsor: Dr. Jayashree Sarathy*

- **Tabitha Pinchot**

“How Do Millennials View Private vs. National Brands?”

According to a March 2016 Pew Research study, Millennials have now over taken baby boomers as the largest demographic. As a result, companies are trying to figure out how to appeal to this segment of the population. Seeking ideas for promoting to Millennials, Sailpointe Creative, a division of Federated Group, approached students in the fall 2016 Marketing Research class for assistance in determining this demographics' awareness and purchase of private brands. Utilizing marketing research techniques, one team of students conducted research designed to measure Millennials participation in grocery shopping awareness of private brands, attitude of private brands vs. national brands, and their assessment of quality as it relates to price. This presentation will reveal the results of that study.

*Faculty sponsor: Dr. Nona Jones*

### 3:00-4:30 pm – Goodwin 317

- **Ismail Ahmad, Sarah Zarnowski**

“Learning Assistants in a General Chemistry Classroom”

The Learning Assistant Program at Benedictine University was initiated by the Benedictine Educating STEM Teachers Program (BEST) through the Robert Noyce Teacher Scholarship Program funded by the National Science Foundation. The duties of a learning assistant in the general chemistry curriculum consist of supporting in-class exercises, leading help sessions, and marking homework assignments. The learning assistant facilitates peer-supported group work activities in order to provide students an environment dedicated to active learning. Results of our on-going research will be presented.

*Faculty sponsor: Dr. Kari Stone*

- **Yechan Kim, Rebecca Thomson**

“The effect of weekly class frequency on the observable actions and behavior of the instructor and students”

One might argue that unless the amount of time that the instructor spends with his or her student is the same, the frequency of the class (once a week or three times a week) should not alter the observable behaviors of both professors and the students in class. To test this, we observed two classes that were held the same amount of times a week but were structured differently: computer science class (three times a week, total of 150 minutes) and biology class (once a week, total of approximately 150 minutes). We observed the professor's

and the students' behavior every two minutes using the Classroom Observation Protocol for Undergraduate STEM tool.

*Faculty sponsor: Dr. Allison Wilson*

- **Mohammed Mohsin**

“Willowbrook Wildlife Center”

To make advancements in any field of study, research plays a vital and integral role. During the Summer of 2016, I performed an informal teaching internship at the Willowbrook Wildlife Center (WWC), which houses many injured wildlife animals from all around DuPage County. At WWC, research is pivotal in order to better accommodate the animals, make their stay more comfortable, and provide a home for those without one. As a Naturalist Assistant, my job responsibilities encompassed researching the housed animals, collecting data on their nature and habitat, and coming up with solutions to implement that would better adjust them to their new home. In addition to my research, I would pass this obtained knowledge along to any visitor or anyone seeking knowledge at the WWC. Through this process, I was able to improve on vital skills such as communication, research, and planning all while having a fun experience. I have newfound creativity, out-of-the box-thinking, and developed science skills that can be functional in any future professional career.

*Faculty sponsor: Dr. Jeffrey Madura*

#### 4:30-5:30 pm – Goodwin 321

- **Stefano Chiaradonna**

“The Dynamics of an Epidemiological Model for Human Papillomavirus with Partial Vaccination in a Heterogeneous Population”

Human papillomavirus (HPV) is the most prevalent sexually transmitted disease in the United States. HPV strains-16 and-18 are the primary agents of cervical cancer; HPV-6 and HPV-11 are responsible for most genital warts and juvenile-onset recurrent respiratory papillomatosis. Highly efficacious vaccines have been developed to prevent these high-risk types of HPV, which are typically administered in three doses except for younger adolescents. We propose and analyze a mathematical model that investigates the implications of having a portion of the population not completing the vaccine regimen. Our model also considers the impact of having portions of the population not receiving the full-vaccine regimen.

*Faculty sponsor: Dr. Tim Comar*

- **Joanna Pilipczuk**

“Isolation of Bacteria with Antibiotic Action From Microbes in Soil”

Although antibiotics are widely used in medicine, the increasing bacterial resistance to antibiotics causes a major health threat. Bacteria can develop a resistance to some current antibiotics in a span of two years, so the need for new antibiotics is urgent. In the study, a soil sample was collected from underneath an Amur cork tree (*Phellodendron amurense*) at The Morton Arboretum. From the soil sample bacteria were enriched and grown on agar plates in order to isolate antibiotic producing bacteria. The bacteria that showed evidence of antibiotic action were further isolated and characterized. Two bacterial isolates showed antibiotic action when tested on known bacteria used as surrogates for pathogens. These two isolates were further characterized and the DNA was sent for molecular taxonomy. The findings of this study suggest that there is potential for more antibiotics to be discovered from microbes in the soil. It takes a lot of screening to find antibiotics to replenish our pharmaceutical supplies, therefore further research is required.

*Faculty sponsor: Dr. Monica Tischler, Dr. Bill Carvell*

- **Jacob Moran**

“Who Wants to Be Sick?: Understanding Factitious Disorder and Its Implications”

An elusive and obscure psychological disorder, factitious disorder stumps many doctors and researchers. Individuals with this disorder either feign or induce illness in themselves or in another individual for no external reward, intending to avoid detection in order to continue the obtaining of the intrinsic reward received through their behaviors. Formerly called Munchausen’s syndrome (feigning or inducing illness in oneself) or Munchausen’s syndrome by proxy (feigning or inducing illness in someone else, typically one’s child), factitious disorder is a dangerous disorder, at times leading to bodily harm to oneself or to another. The illusive and secretive nature of factitious disorder causes detection, diagnosis, professional treatment, and even research of the disorder to be very difficult. As a result, little is known regarding prevalence, etiology, or effective treatment of this disorder. This presentation, adapted from an abnormal psychology term paper on factitious disorder, will discuss current and possible future research on factitious disorder and the implications of this research on the understanding of factitious disorder and on the medical community.

*Faculty sponsor: Dr. Sandra Chmelir*