Fall 2013

Honors Research Symposium Program [Fall 2013]

University Honors Program Students and Staff

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FALL 2013
Honors Research Symposium
Program Schedule

Reception
Information Technology Building, Room 3301
5:30 pm - 6:00 pm

Thesis/Capstone Presentations
Information Technology Building, Room 3202 & 3204
6:15 pm – 7:45 pm

Presentation of Medallions
Information Technology Building, Room 3301
7:45 pm – 8:00 pm

Madeline Bunn
Management
Professional Business Plan for the Future Bakery: MaddyCakes by Design
Dr. Chris Welter
This report contains the information necessary to begin business as an all-natural wedding cake bakery in the city of Boulder, Colorado. With this information, I have thoroughly outlined how I intend to operate my business as well as a detailed projection of our future success. Other information included in the plan is a description of what we are selling and how we intend to differentiate ourselves from our competitors, an evaluation of the city of Boulder and why it was chosen as the ideal location, and an explanation of our target market segment. From this business plan I am able to answer the question of whether an all-natural bakery will be a profitable endeavor now and whether it will remain profitable in the future.

Kimberlee Beall
Exercise Science
An Examination of Methods used to Promote Psychological Well Being During Stroke Rehabilitation - A Qualitative Investigation
Dr. Daniel R. Czech
Post Stroke Depression is extremely prevalent among stroke victims, even those considered to be functionally independent (Brown, 2012). This depression can affect the recovery rate of patients. Most rehabilitation programs are focused solely on physical recovery, while psychological adjustments are many times ignored (Forster, 1992). Occupational therapists do not necessarily have the training needed to aid patients increasing quality of life from a psychological perspective (McLaughlin, 2005). Thus the purpose of this study is to qualitatively examine occupational therapists perceptions on actions needed to increase the psychological quality of life of their patients and their patients' perceptions on what they need from their therapists to increase their quality of life from a psychological perspective.

Haley Cronon
Exercise Science
Attraction to Physical Activity of a Sample of Collegiate Female Athletes and Nonathletes - A Qualitative Methodological Approach
Dr. Daniel R. Czech
Only 22% of adults regularly engage in sustained physical activity during leisure time, and males are still more likely than females to participate in physical activity (US Department of Health and Human Services, 1996). For women particularly, an important source of exercise motivation may be current or previous sport participation, as research has shown that long-term involvement in sport at a competitive level may positively influence women's decision to remain physically active throughout their lives (Woitas-Ślubowska, 2007). Attraction to physical activity can be grounded in the Self-Determination Theory (Deci & Ryan, 1985), which defines intrinsic and extrinsic motivation and the roles that each type of motivation plays in adherence to a task. The purpose of the current research was to use a qualitative-methodological approach to understand attraction to physical activity of a sample of collegiate females via individual interviews. Based on these results, the secondary purpose was to examine the similarities and differences between athletes and nonathletes regarding attraction to physical activity within the collegiate female sample. The interviews revealed two overarching themes: attraction and aversion to physical activity, each with subthemes. Clinical relevance is discussed as are future research and program implementation suggestions.
**Lauren Livingston**  
Construction Management  
Cost Estimation through Building Information Models  
**Dr. Marcel Maghiar**

Estimating is a critical process in construction. Each project begins with forming an actual cost of construction to present to the owner. Therefore, it is critical that the estimate is accurate because it can be very costly to the construction team if the actual cost is over the proposed budget. Quantification is the first step in building an estimate. There are many different methods and tools available to increase the estimator’s productivity. Time is of the essence, and if the time of the quantification process can be reduced, then it can lead for more time in bidding more jobs. For this thesis, research has been performed to compare two methods: the traditional On-Screen Take-off method and a more modern method by extracting quantities from Building Information Model (BIM). This study includes methods to improve productivity and accuracy when performing take-offs for areas, counts, and lengths. Findings from this study and research conclude that by extracting quantity take-off from BIM models is not only a faster method, but more accurate, thus saving money.

**Colleen McNally**  
Journalism  
Influence of Social Media on Journalistic Routines  
**Dr. Camille Broadway**

Applying Keith’s 2011 reconceptualization of Shoemaker and Reese’s Theory of a Hierarchy of Influences on media content in the digital era, this paper considers how the rise of social media has permeated the levels of the journalist’s individual influence on newsroom routines. Considering the unstable nature of the Internet and social media’s emergence within the last decade, standard procedures for journalists are continually evolving. The purpose of this qualitative study is to determine how, if at all, social media have influenced journalistic storytelling routines and how, if at all, different news organizations - including traditionally print, broadcast, and online-originated outlets - have adapted to these influences. Routines could include developing story ideas, gathering sources, fact-checking information, and news delivery. Professional journalists from different news outlets in the Southeastern United States were interviewed by phone regarding their relevant experiences. Names and other information that makes participants or their news organizations identifiable were changed for confidentiality. Using thematic analysis, the researcher reviewed the responses for similarities and differences. The results indicated that social media, mainly Facebook and Twitter, have influenced daily journalistic routines for different news organizations. Some trends are consistent across different organizations, while other adaptations to these influences are varied.

**Ty J. Von Plinsky**  
Information Technology  
Recreating the Theremin: A Modern Take on a Definitive Instrument  
**Dr. Christopher Kadlec**

The author explores the theremin and its impact on music technology by recreating the device using modern hardware and software, ending with a project that captures the essential features of the original (plus a few new ones).

**Osazee Paul**  
Information Technology  
Predictive Analytics: Another Approach  
**Dr. Adrian Gardiner**

This study proposes another method to explore a dataset, identify its errors, and analyse it using the Naive Bayes model.

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**Jack St. Jean**  
Biology  
Expression of Ferritin Gene from *Ixodes muris* Hard-Ticks  
**Dr. Quentin Fang**

Ticks are vectors of many pathogens and are responsible for the transmission of various types of diseases to humans, pets, and livestock. Since ticks are obligate blood-feeders and lack an efficient excretory system, they cannot excrete extra iron which is rich in their blood diet. Therefore, maintaining adequate iron levels for nutritional requirements while controlling the potential toxic property of iron are crucial to ticks. It has been assumed that ticks utilize ferritin proteins to store and detoxify excessive iron gained from blood, their food source, as documented in other animals and insects. Previously, Dr. Quentin Fang’s lab has identified, cloned, and sequenced 8 ferritin genes from hard tick species. The objectives of this study are: 1) to express the ferritin gene in vitro, which were cloned from *Ixodes muris* hard ticks in Dr. Fang’s lab; and 2) to purify the expressed proteins. Controlling ticks is a very important strategy in preventing and controlling tick-borne diseases. However, to date, tick control is heavily relied on by chemical sprays which can cause environmental contamination and pesticide resistance. Using molecular technology to clone, express, and characterize tick’s ferritin gene and its gene protein product may lead to newer methods in controlling ticks and tick-borne diseases.

**Shawna Wade**  
Biology  
Do Right-pawed Dogs have Right-handed Owners and Vice Versa?  
**Dr. Michelle Cawthorn**

The interaction between humans and their canine companions has become a common interest in the world of animal behavior in recent years. Specifically, scientists wonder if canines can observe their owner’s behaviors and possibly mimic them in some way. We compared hand dominance and paw dominance between humans and their canine companions to look for evidence of such mimicry. In a series of three tests, adult dogs (> 2 years old) were tested for paw dominance. We observed which paw dogs used first to 1. choose a treat, 2. remove a piece of tape from their nose, and 3. retrieve a toy. In all three tests, dogs used the paw that matched their owner’s dominant hand two out of three times. Based on these preliminary data, we suggest that canine companion animals may be mimicking certain behaviors of their owners. Future studies should examine the relationship between brain-hemisphere dominance and paw dominance in dogs and relate this back to “handedness” of owners.
Caleb Swain  
Chemistry

Synthetic Parameters Influencing the Formation of Metal Organic Thin Films
Dr. Michele McGibony

Carbon Cycle 2.0, is a Lawrence Berkeley Laboratory funded effort to discover ways of managing carbon dioxide released by human activity; it has led to multi-disciplinary research in hopes of creating new or improving established carbon sequestration methods. Metal-organic framework thin films (MOFs) have shown promise in this area because of their CO2 selectivity, durability, and high surface area. Their synthesis can occur in various ways; layer by layer synthesis (lbl) utilizing a Quartz Crystal Microbalance (QCM) has proved an efficient and highly valuable means of synthesis. Metal precursor and organic precursor are passed over the substrate in a consecutive manner until the desired film thickness is reached. Analysis of the films includes detection of the frequency change observed with each layer combined with the Sauerbrey formula to calculate the mass deposited. Films synthesized with various organic linker concentrations on differing substrates were analyzed. Mass deposited of the metal precursor is greater when the linker concentration is higher. XRD is used to verify crystal orientation within the films and gas phase QCM experiments measure CO2 adsorption.

Jana Simmons  
Political Science and Biology

The Impact of Gubernatorial Constituencies on Medicaid Expansion
Dr. P. Cary Christian

Roughly 5.5 million low income, uninsured Americans stand to gain coverage under Medicaid expansion in twenty-one states that are not moving forward with expansion at this time. Although the Republican Party as a whole has opposed the Affordable Care Act, many Grand Old Party governors have supported Medicaid expansion in their respective states. This thesis aims to explain the reasons why political party affiliation of the governor does not seem to influence Republican governors in choosing to support Medicaid expansion. By using Kingdon’s theoretical multiple streams framework, case studies including Georgia, Florida, North Dakota, Michigan, Arizona, New Jersey, and Ohio are examined. Gubernatorial constituencies are found to largely impact the decision of governors to support Medicaid expansion.

Alyssa Johnson  
Political Science

The Hague Convention on the Protection of Children and Co-Operation in Respect to Intercountry Adoption, the Intercountry Adoption Act, and Their Impact on Intercountry Adoptions
Dr. Krista Wiegand

Since 2000, the United States has begun the implementation of the Hague Convention on the Protection of Children and Co-Operation in Respect to Intercountry Adoption (HCIA). In looking at the Convention as a whole as well as the process of implementation in the United States, it has become clear that the HCIA and the associated American law, the Intercountry Adoption Act (IAA) do not adequately protect biological as well as adoptive parents and children. A lack of guidelines in the HCIA also allow for financial and economical corruption to arise and dominate in the realm of adoption. Finally, the possible discrepancies in the process of accrediting adoption agencies on a country-by-country basis allow corruption and disregard for protection of families to continue. This paper will explore the pitfalls of the Convention in each of these areas and how they tie together to limit the success of the HCIA.

James Farmer  
Political Science

Are There Cracks in the Democratic Peace?
Dr. Jamie Scalera

The Democratic Peace Principle is both a well-documented and a heavily scrutinized element of International Relations theory. My research aims to further analyze the principle to determine more precise conditions under which conflict can arise between democratic states. As such, my research builds on the steps to war approach of John Vasquez and Paul Senese. More specifically, my research analyzes the amount of conflict between democratic states of differing military and economic capabilities in order to see if such dyads have different dynamics than dyads with comparable military and economic might. If there are differing degrees of the democratic peace based on factors such as military and economic strength, this could indicate where future wars between democratic states would arise.
Congratulations to the Fall 2013 Honors Graduates

Kimberlee Beall
Madeline Bunn
Haley Cronon
Alyssa Johnson
Lauren Livingston
Colleen McNally
Osazee Paul
Jeffrey Silvey
Jana Simmons
Jack St. Jean
Caleb Swain
Ty Von Plinsky
Shawna Wade