



*April 29, 2016*

## *Schedule of Events*

<b>10:00 am</b>	<b>Student Registration and Poster Setup</b> <i>Memorial Union, Washburn A &amp; B Lobby</i>
<b>10:30 a.m. – 1:00 p.m.</b>	<b>Fine Arts Performance Session</b> <i>Carole Chapel</i>
<b>1:00 p.m. – 3:00 p.m.</b>	<b>Oral Presentation Session</b> <i>Henderson Learning Resources Center Rooms 203, 205, 304, 307, and 308</i>
<b>3:00 p.m. – 3:45 p.m.</b>	<b>Welcome</b> <i>Memorial Union, Washburn B</i> Shaun Schmidt, Chair, Apeiron Committee
	<b>Recognition of Student Designers</b> Mark Kotich and Amy Reinhardt Regina Cassell, Apeiron Committee
	<b>Introduction of Last Lecture</b> Jim Smith, Professor of Social Work
	<b>Last Lecture</b> Nan Palmer Professor Emeritus of Social Work
<b>3:45 p.m. – 5:00 p.m.</b>	<b>Poster Session and Reception</b> <i>Memorial Union, Washburn A</i>



[www.washburn.edu/apeiron](http://www.washburn.edu/apeiron)

# *Last Lecture*

## “I Am Doing Very Well: The Link Between Gratitude and Resiliency”

presented by

Nan Palmer, Ph.D., ACSW/LMSW  
Professor Emeritus of Social Work

Dr. Nan Palmer, a social worker for over 45 years, has a rich background of experience in child welfare and mental health where she developed a specialty in clinical practice with child and adult survivors of trauma. Drawing on 20 years of practice in these areas of expertise, while earning a doctorate in social work, Dr. Palmer developed and taught an innovative course on clinical practice with trauma survivors, one of the first in the nation. Likewise her ground-breaking doctoral research on resiliency in the early 1990s was of significant international interest which continues today.

Dr. Palmer retired in May 2015 after 24 years as a tenured professor at Washburn University. She was one of the founding faculty of the MSW program at Washburn and served twice as Department Chair, and twice as BSW Director. Dr. Palmer also served as teaching faculty for the National Victims Assistance Academy and was one of the founding members of the a Joint Center on Violence and Victims Studies. Her extensive community service includes animal therapy over the past 10 years with her standard poodle, Gracie, to the Stormont Cancer Center and other facilities.

Professor Palmer has published over 20 articles and book chapters on such subjects as sexual assault and family violence, resiliency in adult survivors of alcoholics, human trafficking, water as a human right, LGBT issues, and animal therapy. Publications include issues in the *Southern California Review of Law and Social Justice*, the *ILSA Journal of International and Comparative Law*, and the *Journal of Ethnic and Cultural Diversity*.

Dr. Palmer was awarded the Ned N. Fleming Excellence in Teaching in 2013 and the Herrick award for outstanding service to Washburn in 2002.

Nan is enjoying her post-Washburn years with wife, Maria, on a 100-acre farm in the beautiful Ozarks where nature inspires her return to painting and other forms of art.

Memorial Union – Washburn B  
3:00 pm

*This lecture is made possible with support from the Washburn University Foundation. Dr. Palmer has generously requested this contribution be devoted to support a series of events focused on faculty appreciation for the social work majors in the Department of Social Work.*

## Schedule of Oral Presentations

(HC = Henderson Learning Resources Center)

<b>Time/Location</b>	<b>Presenter</b>	<b>Title</b>
<b>1:05 pm – 1:25 pm</b>		
HC 304	Eileen Joy, Kelsey Moffitt, Ryan Smalley, Brian Stran, and Zachery Hinnergardt	<i>Communication, Consent, and Sexual Assault: A Critical Analysis of Healthy Relationships on College Campuses</i>
HC 308	Betty Lou Pardue	<i>Memphis Music in the Civil Rights Era</i>
HC 203	Matthew Becker	<i>US Foreign Aid: Is It Effective?</i>
HC 307	Mallory Lutz	<i>Civil Rights Pilgrimage</i>
HC 205	Austin Harris	<i>Woodrow Wilson and Civil Religion: A Cooperative Relationship</i>
<b>1:30 pm – 1:50 pm</b>		
HC 304	Brian Stran, Ryan Smalley, Kelsey Moffitt, Eileen Joy, and Zachery Hinnergardt	<i>Fraternalities and the Culture of Change: Utility of Psychoeducational Groups on Healthy Relationships</i>
HC 308	Troy Russell	<i>Continuing Civil Rights as a Movement</i>
HC 203	Luke Hill and Hannah Johnson	<i>Washburn's Rank and Budget Compared to Other Universities in Kansas</i>
HC 307	Pratity Joshy	<i>Exploring Civil Rights Through a Nepali Perspective</i>
HC 205	Kinsey Ashworth	<i>The Common People's Prophet: How Andrew Jackson Used Civil Religion to Garner the Support of the American People</i>
<b>2:00 pm – 2:20 pm</b>		
HC 304	Blaire Landon, Scott Spacek, and Susan Barnett	<i>Comparison of Stroke Rehabilitation Methods in the U.S. and Japan</i>
HC 308	Cal Phoenix	<i>An Exploration and Application of Ethnomathematics in Quilting</i>
HC 203	Blake Porter	<i>Effect of Kansas House Bill 2117 on Economic Activity and State Budget</i>
HC 307	Jordan Callison	<i>Topeka to Birmingham: A Look at the Civil Rights Movement</i>
HC 205	Alexis Winter	<i>Theodore Roosevelt and Civil Religion</i>
<b>2:25 pm – 2:45 pm</b>		
HC 304	Said Fallala	<i>"In Vain Seek Donelson": Senseless Sacrifice and the Ritualization of War in Herman Melville's "Donelson"</i>
HC 308	Anna Buddish	<i>How the Pen Won the Vote: Women in Literature Influence on the Women's Suffrage Movement</i>
HC 203	Jack Zhao and Alexander Weber	<i>Quantum Computing: Equip CIS Students for the Future</i>
HC 307	Nicole O'Brate	<i>Exploring Civil Rights: The Movement Must Move Forward</i>
HC 205	Jonathan Hart	<i>George Washington: The Support That Molded the United States Constitution</i>

(Insert Washburn campus map on this page)

## Fine Arts Presentations

**10:30 a.m. – 1:00 p.m.**

*H* denotes Honors Thesis and/or Contract

*WTE* denotes Washburn Transformational Experience

► **10:30 a.m.**

**Carole Chapel**

**Moderator: Connie Gibbons**

*The Spirit and Sounds of the Civil Rights Movement*

**Gwyndolyn M. Radford**

Mentor: Connie Gibbons, Art

*H* *WTE*

Over spring break, I took a trip to the Southern United States with HI300: Exploring Civil Rights. Although I experienced many emotions and felt personal connections with the sites that I visited, there was nothing that impacted me more than the music of the Civil Rights Movement. From visiting Stax Records to attending Al Green's church service, I was able to see and hear firsthand what it means to have "soul." I will discuss the importance of music in the Civil Rights Movement while focusing on the foundation of the church in the progression of gospel. I will share about my encounters with music over the course of the trip and perform various spirituals and freedom songs after explaining their significance.

► **11:00 a.m.**

**Carole Chapel**

**Moderator: Tom Averill**

*A Tracing: Poetic Responses to Self Destruction*

**Cal Louise Phoenix**

Mentor: Thomas Averill, English

At this performance, I will read a series of about eight poems whose theme regards that which is invited to be imposed on the body, and the self's reactions to these destructive forces. Specifically, I will read poems that feature aspects of my own involvement with alcoholism, an eating disorder, and the paradoxical nature of falling in love. The selection ranges in form from experimental narrative to surrealist persona; heard together, the works will hopefully allow for a varied and beautifully challenging listening experience.

► **11:30 a.m.**

**Carole Chapel**

**Moderator: Penny Weiner**

*One in Many*

**Vincent Neff**

Mentor: Penelope Weiner, Theatre

The issue this play explores is the consequence of keeping a grudge, and how that can inadvertently affect one's own future. Karen is a retired woman, living alone in a small apartment. Her upstairs neighbors, a father and daughter, are quite loud, the father often yelling and cursing over what seems to Karen, trifling matters. These stormy sessions, lead her to reminisce about her life with her father and how they became estranged from one another.

► 11:45 a.m.

Carole Chapel

Moderator: Penny Weiner

*An Open Letter*

**Kelly R. Andrews**

Mentor: Penelope Weiner, Theatre

WTE

This short play illustrates the experiences of individuals with suicidal ideation in relation to society at large. The author intends to address the duality of the human experiences and reality. In this piece, two characters have a conversation, yet both seem to be on entirely different pages. Both persons are isolated from the experiences and connection to and of the other, though they are physically mere inches one another.

► 12:05 p.m.

Carole Chapel

Moderator: Karen Benda

*Clarinet Quartet on the Variations of Colonel Bogey*

**Meaghan Hartley, Jessica V. Knieff, Allison R. Budke, and  
Kristina Anne Hernandez**

Mentor: Karen Benda, Music

The clarinet quartet will be performing Die Kunst Der Klarinette "Variations on Colonel Bogey" written by Ian Holloway in 1975. It is comprised of an introduction, theme, and variations that utilize different styles of music. We will present how the various musical styles are incorporated throughout the variations we will be performing. Musical examples will be played prior to our performance during the presentation illustrating Holloway's whimsical and innovative composition style. Following this presentation, the piece will be played in its entirety.

► 12:30 p.m.

Carole Chapel

Moderator: Yu-Fang Chen

*Beethoven String Quartet in C minor, Op. 18, No. 4: I. Allegro ma non tanto  
II. Scherzo. Andante scherzoso quasi Allegretto*

**Zachary H. Cope, Ryan W. Masotto, Samantha J. Silver, and Brett A. Lytle**

Mentor: Yu-Fang Chen, Music

We will present on the historical background of Beethoven's life, compositions, and opus 18 string quartets as a whole. In addition to that, we will play and present in more detail on Beethoven's String Quartet in C minor, Op. 18, No. 4 (movement one and two).

# Oral Presentations

1:00 p.m. – 3:00 p.m.

*H* denotes Honors Thesis and/or Contract

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## Session $\alpha$

Moderator: Leslie Reynard

► 1:05 p.m. Henderson, Room 304

*Communication, Consent, and Sexual Assault: A Critical Analysis of Healthy Relationships on College Campuses*

**Eileen E. Joy, Kelsey M. Moffitt, Ryan B. Smalley, Brian Stran, and Zachery L. Hinnergardt**

Mentor: Jericho Hockett, Psychology

There is a need for increased psychoeducation concerning developing and sustaining healthy relationships on college campuses. A recent study (Moss, 2014) evidenced that Washburn University students experienced higher rates of intimate partner violence than the national average. Experiencing and perpetrating intimate partner abuse was associated with students' attitudes towards the acceptability of violence as a means to solve conflict. Nearly 1 in 4 women experience sexual assault while in college (Planty, Langton, & Stroop, 2016) with the majority of assaults being committed by someone the victim knows. Additionally, 63.3% of college males admitted to committing repeated rapes at one university surveyed (Fisher, Cullen, & Turner, 2000). While high rates of sexual assaults are documented on college campuses, more than 90% of sexual assaults are not reported (Lisak, Gardinier, Nicksa, & Cote, 2010). To address these issues, researchers assessed fraternity members' knowledge and attitudes regarding communication, consent, and sexual assault. Understanding students' attitudes towards sexual assault and consent is necessary for effectively implementing sexual assault awareness programming on college campuses.

► 1:30 p.m. Henderson, Room 304

*Fraternities and the Culture of Change: Utility of Psychoeducational Groups on Healthy Relationships*

**Brian Stran, Ryan B. Smalley, Kelsey M. Moffitt, Eileen E. Joy, and Zachery L. Hinnergardt**

Mentor: David Provorse, Psychology

Issues surrounding sexual assault, harassment, and abuse of women has been a highly publicized topic surrounding Fraternities throughout the United States. A recent study at Washburn University (Moss, 2014) found that Washburn students experience intimate partner violence at a

higher rate than national average; 70% of the sample reported perpetrating and 74% reported experiencing intimate partner violence. The Moss study (2014) found that perpetration and experience of intimate partner violence was significantly related to one's attitude toward the acceptability of violence as a solution. With violence at alarming rates being reported among college students, there is a significant need to find effective means of intervention and prevention. Like many movements that are being enacted across universities nationwide, the healthy relationship psychoeducational group provided to the fraternities at Washburn University sought to help establish a culture of change. The psychoeducational groups consisted of topics regarding boundaries, communication, consent, and bystander intervention. To assess baseline attitudes towards the subject material and track changes in attitudes over the course of the presentations, the measurements were administered before, during, and after the presentations. The purpose of this study is to assess the efficacy of the Healthy Relationship psychoeducational groups for the fraternities of Washburn University.

► 2:00 p.m.                    Henderson, Room 304

***Comparison of Stroke Rehabilitation Methods in the U.S. and Japan***

**Blaire Elyse Landon\*, Scott L. Spacek, and Susan Z. Barnett**

Mentor: Crystal Stevens, School of Nursing

\*H WTE

This paper is a review of literature exploring scholarly research about Japanese and United States healthcare regarding stroke rehabilitation. This is an honors project for the authors, which was paired with their academic studies in Japan, and includes observations from stroke care wards of both countries. Benefits and disadvantages are explored for each country's approach to stroke rehabilitation and proposals are made for medical collaboration and further research. The conclusion is that while the science and application of stroke rehabilitation care is similar for both countries, Japan's work ethic and single-payer system offer financial insights, while the United States' emphasis on nursing autonomy provides safer patient care. Leininger's theory of culturally diverse care is the framework for exchanging cultural and healthcare approaches to achieve better outcomes in both countries.

► 2:25 p.m.                    Henderson, Room 304

***"In Vain Seek Donelson": Senseless Sacrifice and the Ritualization of War in Herman Melville's "Donelson"***

**Said Hail Fallaha**

Mentor: Vanessa Steinroetter, English

WTE

"Donelson" is a Civil-War poem written by Herman Melville and published in 1866. The poem's focus is on the correspondence letters to civilians. In spite of the heightened interest in "Donelson," the particular language with which Melville invests in the soldiers' and civilians' experience of the battle of Fort Donelson has received surprisingly little attention. Based on a careful reading of "Donelson," I argue in this essay that Melville deliberately invokes the language of religious ritual and ceremony ritual (both of Christianity and of ancient non-



Christian cultures). This shows how the news media glorify the senseless carnage and destruction of battle and how civilians and soldiers alike act out their culturally scripted roles, much as if participating in a sacrificial ceremony. Thus, Fort Donelson and the battle associated with the fort's name become a metaphor for the ritualization of war and with this metaphor Melville creates a subtle but powerful anti-war message.



## Session $\beta$

Moderator: John Paul

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► 1:05 p.m.            Henderson, Room 308

*Memphis Music in the Civil Rights Era*

**Betty Lou Pardue**

Mentor: Bruce Mactavish, History

WTE

I am in the Exploring Civil Rights class with Dr. Mactavish and Connie Gibbons. March 12-19 were dates we travelled to the deep south for a once-in-a-lifetime learning experience. The experience changed me more than through the music but I have narrowed my presentation to discuss the musicians, vocalists, and DJs during the Civil Rights period and somewhat beyond.

► 1:30 p.m.            Henderson, Room 308

*Continuing Civil Rights as a Movement*

**Troy C. Russell**

Mentor: Bruce Mactavish, History

WTE

I will be discussing my background and how it prompted me to pursue exploring civil rights, culminating in a Spring Break trip touring historical sites of the modern-day Civil Rights Movement. This experience allowed me to develop a deeper understanding of the not-so-distant past and how it plays a role in contemporary times. I will share the most impactful experiences of the trip from my point of view. What I learned from visiting The Stax and B.B. King museums taught me music's role in the culture and movement of Memphis. Meeting current civil rights leaders inspired and helped me understand that the movement is not over and still needs this generation to continue the fight.

► 2:00 p.m.                    Henderson, Room 308

*An Exploration and Application of Ethnomathematics in Quilting*

**Cal Louise Phoenix**

Mentor: John Paul, Sociology - Anthropology

In this presentation, I will introduce and apply the six universal forms of mathematics to a personalized sewing (arts) based project. Specifically, I will identify the universal forms of counting, locating, measuring, designing, playing, and explaining to the creation of a quilt. Photographs and narrative explanations will be used to illustrate these mathematical concepts and to suggest an alternative way of studying and engaging math.

► 2:25 p.m.                    Henderson, Room 308

*How the Pen Won the Vote: Women in Literature Influence on the Women's Suffrage Movement*

**Anna E. Buddish**

Mentor: Kerry Wynn, History

Women in the United States at the beginning of the twentieth century went through a shift of acceptable social standards. They went from being primarily bound to the home to stepping out of the Cult of Domesticity, achieving the ability to vote with the passing of the Nineteenth Amendment. At the same time novels were becoming more available. By looking at two novels from the James R. Mead Library Collection and having a view of women from both a male author's (Zane Gray's *Light of the Western Stars* (1914)) point of view and a female author's (Gene Stratton-Porter's *A Daughter of the Land* (1918)) point of view, it will be explored how women in literature influenced the Women's Suffrage Movement.



**Session  $\gamma$**

**Moderator: Tracie Lutz**

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► 1:05 p.m.                    Henderson, Room 203

*US Foreign Aid: Is It Effective?*

**Matthew J. Becker**

Mentor: Linsey Moddelmog, Political Science – Geography

WTE

This research was designed to find out if US foreign aid is effective at helping to make the situation better in the countries in which it is received. To measure this a linear regression was done to see if total foreign aid would change GDP growth over a five year period. By testing the change in GDP per capita growth by Foreign Aid totals we can see if aid is effective at increasing conditions on the ground. Results indicate that total foreign aid spending has no

correlation in GDP per capita change. Even with an independent variable that covered many other reasons that affect GDP per capita growth it had no correlation.

► **1:30 p.m.**                    **Henderson, Room 203**

***Washburn's Rank and Budget Compared to Other Universities in Kansas***

**Luke M. Hill and Hannah I. Johnson**

Mentor: Gaspar Porta, Mathematics & Statistics

WTE

We compare Washburn's ranking and budget to other institutions in Kansas in the same category according to the US World and News Report for 2004 through 2016. We collected data from the University budget and compared it with information we gathered from other Universities.

► **2:00 p.m.**                    **Henderson, Room 203**

***Effect of Kansas House Bill 2117 on Economic Activity and State Budget***

**Blake K. Porter**

Mentor: Dmitri Nizovtsev, School of Business

WTE

The goal of the study is to provide a fact-based and nonpartisan evaluation of House Bill 2117 and its effect on the Kansas economy. HB 2117 exempts certain non-wage business income that had been subject to individual income tax. The goal of this policy change, which was enacted in 2012, was to stimulate economic activity in Kansas. The present study addresses two questions. First, what were the desired effects of this policy change? And second, what actually happened? To answer the first question, we analyze the dynamics of past state budgets and revenue estimates. To answer the second question, we analyze four metrics of state economic activity: the gross domestic product (GDP) growth, wage growth, employment, and the number of business establishments in the state. Those statistics are then compared to the data from a comparison state sample. We also examine the volatility in the state's revenue collections in relation to the timing of HB 2117 passage in order to better understand the implications for the state budget.

► **2:25 p.m.**                    **Henderson, Room 203**

***Quantum Computing: Equip CIS Students for the Future***

**Jack Zhao and Alexander G. Weber**

Mentor: Nan Sun, Computer Information Sciences

WTE

Quantum computing is based on the quantum mechanics theory which is a critical subset of modern physics that studies the behavior and nature of matter on the atomic or subatomic level. Unlike classical computers in which data are represented by bits that are 1s and 0s, quantum computers adapt qubits that can represent 1s, 0s, and both at the same time, which increases the computing power exponentially. Because of the computing power and practical application in military, business, and scientific researches, quantum computing is expected to be a revolution in

both Computer Information Science and Electrical Engineering. In this paper, we will explore the mechanics behind quantum computers, analyze the future career of quantum computing field, and suggest knowledge units in a college course that will prepare students to enter the quantum computing field. We plan to analyze the future of quantum computing and explore the knowledge units in a computing course in two ways. 1) Conduct a survey of students in CIS major to determine their level of knowledge and interests of quantum computing, 2) interview quantum computing researchers and professors to obtain information of current progress in quantum computing and their expectation for students who will enter this field.



## Session $\delta$

Moderator: Sharla Blank

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► 1:05 p.m.                    Henderson, Room 307

*Civil Rights Pilgrimage*

**Mallory K. Lutz**

Mentor: Bruce Mactavish, History

*H WTE*

Over Spring Break this year I traveled to the Deep South with the Exploring Civil Rights class. We visited a number of the places that came to define the Civil Rights Movement, including Memphis, Jackson, Selma, Montgomery, and Birmingham. My presentation will discuss and analyze the conversations and presentations of academics, ministers, and participants of the Civil Rights Movement. My presentation will also focus on museum exhibits and interpretations and sites that were important to the movement. The focus of my presentation is the legacy of the Civil Rights Movement and how Southern attitudes and identities have evolved.

► 1:30 p.m.                    Henderson, Room 307

*Exploring Civil Rights Through a Nepali Perspective*

**Pratity Joshy**

Mentor: Bruce Mactavish, History

*WTE*

My presentation will focus on my perspective and experience about exploring Civil Rights. From March 12-19 I went on a trip to the Deep South to learn about the history of Civil Rights. I will be presenting not only the history but also the food and music of the people living in the South.

► 2:00 p.m.                    Henderson, Room 307

*Topeka to Birmingham: A Look at the Civil Rights Movement*

**Jordan M. Callison**

Mentor: Bruce Mactavish, History

WTE

This presentation will use photographs and narratives that will cover our trip to the South. We will look at the multiple facets pertaining to the Civil Rights movement. We will look at the movement and how it has changed since the Brown v. Board decision, as well as look at how we as U.S. citizens can help with the movement.

► 2:25 p.m.                    Henderson, Room 307

*Exploring Civil Rights: The Movement Must Move Forward*

**Nicole M. O'Brate**

Mentor: Connie Gibbons, Art

WTE

This presentation grows from a Spring Break travel trip to the Deep South. It will focus on the Civil Rights Movement and issues related to voting rights for all citizens. Consideration will be given to both historical successes and contemporary challenges.



**Session E**

**Moderator: Tony Silvestri**

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► 1:05 p.m.                    Henderson, Room 205

*Woodrow Wilson and Civil Religion: A Cooperative Relationship*

**Austin L. Harris**

Mentor: Alan Bearman, History

An examination of Woodrow Wilson's interplay with civil religion seeks to shed light on the War Presidents impact on the nation's shared civic faith. By gaining an understanding of the development and role of civil religion in the United States, while understanding how Wilson's life and career played into its growth, one gains greater insight into the policies of Wilson that would impact the nation for the century following his presidency. In this essay, the author argues that President Wilson added the belief that Americans could engage in just wars, as crusaders of peace and justice, to the polity of the civil religion. By reviewing the President's language before, during, and after World War I it can be argued that Wilson used the civil religion to justify, to the American people, a war in which the nation had relatively little interest. Wilson was equally adept in using the civic faith to argue for peace, progressive reforms, and cooperation amongst nations, all of which are lasting pillars of his legacy as president.

► 1:30 p.m.                    Henderson, Room 205

*The Common People's Prophet: How Andrew Jackson Used Civil Religion to Garner the Support of the American People*

**Kinsey C. Ashworth**

Mentor: Alan Bearman, History

This presentation will examine the concept of civil religion and the American Presidency by considering the presidency of Andrew Jackson. Jackson was a controversial character (known for his participation in duels) who proposed radical changes to the government during his presidency, so convincing the American people that support his proposals was crucial. During his presidency, he used civil religion to convince the common people that his radical actions were designed to weaken the power of the government and give the power back to the citizens.

► 2:00 p.m.                    Henderson, Room 205

*Theodore Roosevelt and Civil Religion*

**Alexis Q. Winter**

Mentor: Alan Bearman, History

WTE

My presentation will be over Theodore Roosevelt demonstrating his preaching of civil religion throughout his Presidency.

► 2:25 p.m.                    Henderson, Room 205

*George Washington: The Support That Molded the United States Constitution*

**Johnathan Lee Hart**

Mentor: Kelly Erby, History

WTE

My topic will cover the life of George Washington between 1773 to 1788. This was a crucial time for our young nation and the Articles of Confederation were not working. Washington had long been in support of having a stronger centralized government and to use this government to build national infrastructure and raise funds to pay for war debt. I will show the role George Washington played in calling for a revised constitution of centralized government in the United States.

# Poster Presentations

3:45 p.m. – 5:00 p.m.

*Memorial Union, Washburn A*

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$\mathcal{WTE}$  denotes Washburn Transformational Experience

1

## *Diving Into the Waters of the Deep South*

**Broderick J. Schuman**

Mentor: Bruce Mactavish, History

$\mathcal{WTE}$

As I visited the deep south with my colleagues in my Exploring Civil Rights class I learned about the struggles people endured throughout their life during the civil rights movement. Their past is not all pretty, luxurious, or relaxing, but it holds some of the most influential moments that define the world we all live in now. As I went through my journey I kept a diary keeping track of my thoughts, comments, and questions. I took photographs to capture as much I could of the moments, artifacts, and environment that I indulged. With the thoughts I have collected along with the photographs, I have created an interactive timeline or map so that I can share with others to help them learn one thing: "The civil rights movement is not over, and it is far from over. People need to take stand in what they believe is right so that everyone in this world has equality and extended freedom for tomorrow and the days to come." (personal quote, 2016)

2

## *Dreams and Nightmares of the South*

**Ricky Prato**

Mentor: Bruce Mactavish, History

$\mathcal{WTE}$

This is a story told using photographs about the struggles of African Americans and how they overcame hatred against humanity. Pictures depicting the events that came about before and after the Civil Rights Act will be used. A comparison of how the South in different areas changed and how they stayed the same will be mentioned and shown using current and past photos. A segment will be dedicated to a musician who was part of the movement. There will be music and art as part of the presentation.

3

## *Testing the VisibleFS Program*

**Dylan P. Cox and Zach Hastings**

Mentor: Bruce Mechtly, Computer Information Sciences

VisibleFS is a program written by Dr. Bruce Mechtly with the purpose of exploring file systems beyond the normal limitations of operating systems' file explorers. With this program you can view computer file systems in their raw form. This allows you to navigate through directories, search for strings, view a hex dump of the raw data on the drive, and view information that is not

otherwise visible through the operating system. This program can be used for forensic investigations of file systems. The only limitation of VisibleFS is that it, currently, only works for FAT32 LBA, NTFS, and Ext file systems. During the time that we worked on VisibleFS, Zach and I tested the program with different file systems looking for inconsistencies and bugs to help complete the program and make it more comprehensive and accurate. For our presentation we will make a poster that will display screenshots of the various file systems we tested and how they work. We will also have a computer set up with the program running to demonstrate it how it works.

**4**

*Steel*

**Tim R. Lloyd**

Mentor: Connie Gibbons, Art

WTE

This presentation grows from a Spring Break travel trip to the Deep South. Using photographs and sculptural elements, it will focus on the continuing challenges of the Civil Rights Movement.

**5**

*Business Proposal and Plan- A Mobile Boutique.*

**Ashley R. Colhouer**

Mentor: Rick Lejuerne, School of Business

WTE

My presentation is a completion of my capstone project for my major in Integrated Studies. It will be a business model and plan that I have worked closely with Rick Lejuerne to complete. I will show my start-up, idea, and path to creating a potential business.

**6**

*Study Abroad: So Much More Than Meets The Eye*

**Madysen L. Mooradian**

Mentor: Rick Ellis, Human Services

Studying abroad gave me the chance to explore a new country and culture, as well as helping me to connect with students and faculty members whom I see on campus every day.

**7**

*Perspectives on Southern Black Women and Empowerment*

**Julie A. Velez**

Mentor: Connie Gibbons, Art

WTE

I will be presenting a painting that I have done based on my experiences in the class Exploring Civil Rights. We traveled to important Civil Rights sites in Alabama, Mississippi, and Tennessee, and heard presentations and panels from various experts on race, the Civil Rights Movement, and Southern culture. During my presentation I plan to talk about the images of strong women whom I portray in my work and how they related to the Civil Rights Movement and their contemporary meanings.



## 8

### *The Significance of Nonverbal Communication During the Job Interview Process*

**Jessica Barron**

Mentor: RaLynn Schmalzried, Psychology

WTE

This literature review set out to examine what effects nonverbal communication has on the interview process. According to many of the reports that I have found nonverbal communication in fact does have a significant impact on the interview outcome. Certain nonverbal behaviors that have been examined are facial expressions, head movement, eye contact, body position, and other gestures that one makes. Each nonverbal behavior does have significance which will be discussed in the paper. Various research has shown that not only does your attitude affect your body posture but your body posture also affects your attitude. Depending on your body position this in fact can affect your attitude. Through additional research there has been reports that say there are ways to help improve your verbal communication skills. Before an interview one can practice 'power moves.' Power moves consist of body posture that is open (for example sitting back with your hands behind your head or standing while your hands are on your hips, etc.). Nonverbal communication is very important in many aspects, and can influence our opinions of others and others opinions about us, consciously and subconsciously. Fortunately, learning techniques such as power moves will allow us influence others in a positive way and in a way that can benefit us, particularly in the interview process.

## 9

### *Helping Children Succeed at Ross Elementary*

**Hannah P. Ray**

Mentor: Kristine Hart, Learning in the Community (LinC)

WTE

Ross Elementary is a USD501 school that serves students in southeast Topeka. There are 630 students and over 92% of these students come from economically-disadvantaged homes. This presentation will focus on the after school program at Ross Elementary and my role over the last two years as a mentor and tutor in the preschool room. The mission of the Ross Elementary after-school program is to help the students succeed in math and reading, but as a signature music school we also help students learn the fundamentals of playing musical instruments. Through these music based activities, students can learn skills to help them succeed in other areas. In addition to presenting information about the after-school program and the impact it has on the students, I will provide details about my own learning and how the work I do with the students has impacted me. I help plan lessons for the students and even teach some lessons of my own which has been an invaluable experience for me as an Education major. As I currently work with preschoolers who have trouble with their letters, these lessons have been focused on helping students learn their alphabet and how to write their name. These students have impacted the way I view my academic major and future profession, the learning process as it relates to struggling learners, and the community. I have acquired knowledge about teaching techniques and technologies, as well as how the public education system in Topeka works.

## 10

### *Washburn University Ranking and Salaries Exploration*

**Jordan Renea Massey and Emma N. Bayless**

Mentor: Gaspar Porta, Mathematics & Statistics

WTE

We looked at the ranking of Washburn University over the last 12 years and the rankings of other universities in Kansas in Washburn's category. We also combed through the budget of Washburn University 2004-2016. We looked to find trends, similarities, and correlations between the data set within the budget and the ranking of Washburn University on its own, and in comparison to other schools. In this presentation, we will describe some of the patterns, correlations, and connections we discovered.

## 11

### *An Individual Approach With Homeless Veterans: My Internship at Forward March/Foundation House*

**Michelle R. Clearwater**

Mentor: Julie Boydston, Psychology

WTE

Forward March (FM) is a transitional residence program for veterans at risk of homelessness or suicide while Foundation House (FH) is an assisted living facility for veterans with mental health challenges. The current average of veteran suicides is 22 per day. Many veterans find it difficult to function in society due to mental health challenges from combat and general adjustment issues. FM/FH offers these veterans an individualized whole wellness approach to independence. My duties at FM/FH have been to research resources available to veterans, provide rides and support for VA appointments, spend one-on-one time with veterans, and to trouble shoot life issues. I have learned during my time at FM/FH that it is necessary to look at issues from more than one angle and to sometimes become creative in handling a veteran's predicament. From this experience I would like to continue helping veterans to navigate everyday life difficulties.

## 12

### *Effective Vegan Replacement of Egg Whites Using Aquafaba*

**Nicholas A. Milner**

Mentor: Lisa Sharpe Elles, Chemistry

WTE

It has been recently discovered that chickpea water (aquafaba) provides a quality vegan replacement for egg whites in recipes that require a foaming agent (mousse, meringues, etc.). Although many people have used aquafaba successfully, we were curious as to why this works and how it works. Our project goals are twofold: to identify the macromolecular components present in both egg whites and chickpeas and to investigate the intermolecular interactions that occur with each product when foamed with air; and second, to use an array of various chemicals that are known to stabilize the physical foam structure of egg whites to prepare foams of aquafaba and compare them side by side with egg white foams prepared the same way. For both egg whites and chickpeas we have observed that the addition of tartaric acid yields stiff peaked foam in six minutes while the addition of citric acid, sodium bicarbonate, or nothing added formed soft peaked foam in fifteen minutes. We plan on furthering this study by identifying the

various macromolecular components that play a role in foaming in both egg whites and aquafaba as well as subsequent applications of theoretical stabilizers based on the structures of the foams.

## 13

### *Reducing Influenza in Vulnerable Populations*

**Cynthia Rae Wiard**

Mentor: Kathy Ure, School of Nursing

WTE

Current research illustrates the benefits of vaccinating high-risk populations against highly communicable diseases like influenza. With such information in mind, this study seeks to assess the vaccination status of individuals belonging to two vulnerable communities within Topeka, Kansas. The target population in this study includes transient residents of a homeless shelter and low-income individuals who live in an economically-disadvantaged neighborhood. The study also aims to identify barriers of receiving vaccinations in an effort to address these barriers and ultimately increase vaccination rates within these vulnerable communities.

## 14

### *Impact of Aspiring for Graduate-Level Education on Hiring Nurses in the Critical Care: A Small Qualitative Research Project*

**Natalie A. Flaucher**

Mentor: Jane Carpenter, School of Nursing

WTE

The topic I will be addressing in my Nursing Honors Project is the impact (either negative or positive) that a nurse's aspirations to attain a graduate degree has on the nurse being hired into a critical-care unit. I wanted to determine whether hiring managers in the Topeka area were less likely to hire nurses when they know the nurse will leave the department when adequate experience is attained to seek a graduate degree, or whether it has little effect on the hiring process. To address this topic, I have completed a small scale qualitative study. Nurse managers were interviewed with a predetermined list of questions. The interviews were transcribed and themes were extracted and identified. These themes are discussed in depth in order to draw a conclusion as to whether a nurse's desire to further his or her education impacts their ability to get hired to a critical care unit. Key words: Intensive Care Unit, Critical Care, Nurse Manager, Higher Education, Graduate Degree

## 15

### *The Orbital Mechanics of a Space-Based Super Weapon in a Galaxy Far, Far, Away*

**Mindy Townsend**

Mentor: Karen Camarda, Physics - Astronomy - Geology - Engineering

In the much-anticipated 2015 movie, Star Wars Episode VII: The Force Awakens, a military junta known as the First Order destroys the center of government of the New Republic with a massive weapon capable of destroying entire planetary systems. For the weapon to be functional, it must absorb the energy of the star it is orbiting until the star vanishes. However, Newton's Law of Gravitation requires that the orbit of a satellite depend in part on the mass of the central body. Using a fourth order Runge-Kutta algorithm and assumptions about the properties of the weapon,

this project models the orbital path of the weapon and star at various rates of mass decrease and shows how the gravitational force changes over time.

## 16

### ***Family Service & Guidance Center: Dedication, Devotion, and Determination to Provide Quality Behavioral Healthcare to Children and Families***

**Thaina Karoline Dos Santos Jensen**

Mentor: Julie Boydston, Psychology

WTE

This semester I interned at the Family Service & Guidance Center where their mission is to provide quality behavioral healthcare for children and families. Family Service & Guidance Center offers a variety of specialized services: family and group therapy, anxiety and obsessive-compulsive treatment programs, a therapeutic preschool for children ages 2-6 with several emotional and behavioral problems, families supporting recovery for children and adolescents dealing with mental illness and substance use issues, case management, and a center for learning disorders. I shadowed three departments: Youth Development Program (YDP), Community Psychiatric Support & Treatment (CPST), and Crisis Resolution Program (CRP). Some of my duties were providing assistance at Ross Elementary School, working with children one-on-one, and using play therapy to provide a learning task with young children. I've learned that each child is different, to be familiar with how a child responds to a treatment plan, and how to work in different areas at Family Service & Guidance Center.

## 17

### ***Barriers of Employment with Disabilities***

**Ariele A. Dutton**

Mentor: RaLynn Schmalzried, Psychology

WTE

This literature review addresses the barriers and obstacles that disabled individuals face when trying to gain employment. These barriers may differ for individuals with different types of disabilities but overall are common and bridge groups of people. For individuals with physical, mental, learning disabilities it can be harder to obtain employment, even with legal protections that are aimed to reduce and eliminate some of these barriers. I hope to use my findings to educate others on the many barriers that disabled individuals face in trying to find employment.

## 18

### ***Parental Stances and the Impact of Education on Childhood Vaccinations***

**Jordyn Nicole Emert**

Mentor: Amy White, School of Nursing

WTE

The objective of this study is to determine whether or not vaccine education will have an impact on parents' perceptions and practices regarding childhood vaccinations, thus reducing parental hesitancy. Previous research studies have been inconclusive. This study will survey the most common concerns parents have and address those points in an educational handout. Parental perceptions and practices regarding childhood vaccinations will be surveyed both before and after reviewing the educational handout. While vaccination rates remain high, evidence shows an

increasing trend in parental hesitancy, and subsequently increased rates of unvaccinated or under-vaccinated children. Gaining insight into parental concerns and practices will help the nursing community better address these aspects, ensuring all kids remain free from preventable diseases. More information is needed to understand and address these concerns as effectively as possible.

## 19

### *Active Learning of Neurobiological Concepts*

**Ellen E. Glasgow**

Mentor: Jericho Hockett, Psychology

WTE

The purpose of the present study was to examine the effects of an active learning activity in introductory psychology courses, specifically in regards to performance in and perception of content covering the neurobiology unit. Participants completed a measure of confidence, interest, and attention to the class material along with an objective quiz meant to test their knowledge. Participants in the experimental conditions engaged in an active learning activity prior to completing these measures and quiz. Those in the control condition received a lecture only prior to completing the measures and quiz. We hypothesized that those participants who engaged in an active learning activity would provide significantly higher scores of confidence, interest, and attention to the class material, along with higher quiz scores, in comparison to those participants who received a lecture only. Results and implications will be discussed.

## 20

### *"Humor Me!": Effects of Teachers' Use of Humor in the Classroom*

**William B. Qualls**

Mentor: Jericho Hockett, Psychology

WTE

The following study attempted to examine the relationship between professors' use of humor and students' motivation, self-esteem, and test grades. Introductory psychology students from four different classes volunteered to participate in the study which consisted of a self-report survey measuring motivation level and amount of self-esteem. Test grades were recorded following the students' mid-term exam and then were used to examine existing correlations with teachers' use of humor. Implications drawn from the study will be addressed.

## 21

### *When is Self-Expressive Writing Most Effective for Test Anxiety?*

**Jessica Hailey Tuell**

Mentor: Linzi Gibson, Psychology

WTE

According to empirical research, having students utilize expressive writing immediately prior to an exam has been shown to be beneficial in improving exam grades (Ramirez & Beilock, 2011). The purpose of this study is to examine the potential effects that expressive writing may have on exam scores and student perceptions regarding the activity when utilized one week prior to the test compared to directly preceding the exam. Four sections of an introductory psychology course between two instructors were used, consisting of two experimental groups and two

control groups. All four groups completed demographics and the Cassady-Johnson Cognitive Test Anxiety Scale (Cassady & Johnson, 2002). One experimental group received the writing prompts addressing text-anxiety one week prior to two exams, while the other received the writing prompts directly preceding two exams throughout the semester. Each experimental group also completed two subjective-experience measures directly after taking each exam. We expect to find differences between the experimental groups grades and perceptions, as well as between each experimental group and its respective control. Implications will be addressed.

## 22

### *Tres Perspectivas (Three Perspectives): A Nicaraguan Cultural Experience*

**Zoey S. Brandt, Sara Escandon, and Aida Zelada**

Mentor: Rick Ellis, Human Services

WTE

This presentation will be a summary of the Nicaragua trip followed by a reflection done with three different perspectives. Each of our group members traveled to Nicaragua for a two-week service trip and educational experience. Although our itineraries were the same our experiences varied. As we learned about the history, culture, and political atmosphere of the country we also learned more about ourselves and the country we came from. Additionally, our participation in various service projects throughout Nicaragua helped create a humanitarian perspective. The climax of our experience was living in rural Nicaragua with host families for five days.

## 23

### *Beauty Is In the Eye of the Employer: How Appearance Affects Employment Opportunities and Climbing the Social Ladder*

**Nathaniel Boyd Arbuckle Higdon**

Mentor: RaLynn Schmalzried, Psychology

WTE

The job market today is a highly competitive arena in which every choice you make can mean the difference between landing a job and being rejected. We are told not to judge a book by its cover but often our first reaction upon meeting someone new is based solely upon how we visually perceive him or her. With superficial factors playing such a major role in obtaining a job, it's important to understand just how much a person's appearance factors into the hiring equation. In my research on this issue, I studied resources dealing with the interview and hiring process. Each of the articles I read involved some specific aspect of appearance. The areas of appearance that I have chosen to focus on are physical traits such as height, weight, and facial hair, as well as aesthetic traits such as physical attractiveness, body odor, clothing choices, and handshake quality. In today's highly unpredictable job market, knowing what you can do to improve your chances of getting a job is extremely valuable, as well as knowing what faux pas to avoid.

## 24

### *Analyzing Protein Interactions of the Herpes Simplex Virus Type 1 UL34 Protein*

**Nathaniel Boyd Arbuckle Higdon**

Mentor: Susan Bjerke, Biology

WTE

Herpes Simplex Virus-1 (HSV-1) is easily communicable and infection can present in many ways including cold sores, genital herpes, herpes whitlow, and more. HSV-1 proliferates within the host cell nucleus. Once replication is completed the virus exits the nucleus. Viral protein UL34 is essential for the virus to begin exiting the cell. It is unknown which nuclear proteins UL34 is interacting with during this step. UL34 is a highly conserved protein in all human herpesviruses and an ideal candidate for future drug treatments. Understanding interactions between UL34 and host nuclear proteins could potentially lead to a drug that prevents herpes viruses from leaving the nucleus of infected cells. To determine interaction partners for UL34, pulldown assays were performed. In a pulldown assay, purified UL34 protein is mixed with HEp-2 cell lysate, and then UL34 and any binding partners are removed from the mixture. Our results showed some potential UL34 binding partners, but future steps will include alteration of the protocol to strengthen binding during the assay. Once stronger protein interactions occur we will perform isolation experiments to identify binding proteins.

## 25

### *Saving Lives Through Suicide Prevention Awareness*

**Michael L. Heider**

Mentor: Jericho Hockett, Psychology

WTE

Saving lives through a suicide intervention program has been shown to be effective in the current literature in various situations. One stressful time in a person's life is that first semester at a college where many unknowns and new experiences can be overwhelming. For that reason Washburn has created the WU101 class, which may benefit from the addition of suicide-intervention training. Not only does WU101 help build peer-to-peer relationships, but the implications of adding a suicide-intervention presentation could help strengthen the bond through improving students' mental health hygiene and good academic standings. Perceptions of suicidal ideation and individuals helping abilities are compared in two sections of WU101-one that received the training and one that did not. The data collected will contribute to the literature that is already in place showing need and effectiveness of such programs.

## 26

### *Criminal Victims Assistance Unit: More Than Just Arresting the Offender*

**Michael L. Heider**

Mentor: Julie Boydston, Psychology

WTE

The Criminal Victim's Assistance Unit's (CVAU) purpose is to provide victims with advocacy information and referrals to services that may be needed as a result of their victimization. This internship site has taught me to reach out to trauma victims combining empathy, information conveyance, and mental health welfare checks. Each step of law enforcement is procedural for each department. However, the victim does not know the procedures and this is one of many

things the CVAU helps to convey. This internship has taught me how to interact with the different departments so that I can better assist the victim from the moment the offense happens all the way to the trial if the victim wishes it.

## 27

### *What's That Light in the Sky? Investigating the UV and Visible Light from a Nearby Supernova*

**Emily Elaine Engler**

Mentor: Brian Thomas, Physics – Astronomy – Geology – Engineering *H WTE*

According to geological evidence, approximately 2.5 million years ago a massive explosion in space, known as a supernova, occurred near Earth. The question under examination is whether or not a supernova near Earth could affect life on Earth. Our research group has focused on how and in what quantities ultraviolet and visible light from a supernova would pass through the atmosphere of the Earth. To investigate this, I have been collecting and analyzing astronomical measurements of other supernovae that are estimated to be similar in type to the one that exploded 2.5 million years ago. The measurement data gathered from telescopes is known as spectra. Currently I am focusing on one supernova observed in 2012 that is located approximately 38 million light years away. Six observation dates have been collected and are scaled to the correct units and distance of a near by supernova of 326 light years away. Our scaled data is then run through a computer model known as TUV (Tropospheric Ultra Violet), which calculates and simulates how and in what quantities light travels through the Earth's atmosphere. To properly run these calculations, the high performance computing system HiPACE within the Physics and Astronomy Department, is being used. Current progress, findings and their implications will be presented, as well as future plans for this research.

## 28

### *Prevalence of Plantar Fasciitis in Adult Tennis Players*

**Andrew Ian Sanchez**

Mentor: Jean Sanchez, Allied Health *WTE*

Plantar Fasciitis is a painful, debilitating condition that affects many individuals and is particularly common in tennis players. It can become a chronic condition that causes individuals to become less active, thereby impacting their overall health and quality of life. While there have been studies done regarding the prevalence of plantar fasciitis, many of the studies have been focused on athletes in general and not specifically with regard to tennis players. Few studies have been conducted to determine if there is a difference in rates of occurrence between male and female tennis players. With an emphasis being placed on wellness, injury prevention and management of health care costs, this study is timely and important. The potential to develop specific prevention and treatment protocols thereby improving health outcomes could be beneficial to both the community and providers. The results of this research will be used to identify plantar fasciitis patterns, particularly in male versus female tennis players. The results of the research will also aid in the design of tools to educate tennis players so that they may potentially prevent occurrences of this condition and provide information for development of specific treatment protocols.



## 29

### *Cloning and Expression of the TCAP Gene*

**Maddison Williams and Alexandria M. Bontrager**

Mentor: Takrima Sadikot, Biology

WTE

Limb-Girdle Muscular Dystrophy (LGMD) is a group of disorders that affect voluntary muscles, primarily those of the shoulder and pelvic girdle. Currently there are at least 19 forms of LGMD and 15 of these are known to result from genetic defects in muscle proteins. One such form of LGMD, known as LGMD-2G (telethoninopathy) occurs as a result of mutations in the TCAP gene which codes for the muscle protein telethonin. This protein is known to interact with and anchor the muscle protein titin at the ends of the sarcomere, the smallest functional unit of the muscle. Anchoring of titin is important for the regulation and development of normal muscle structure. While many aspects of the interaction between titin and telethonin, particularly the partial binding between the two proteins is understood, the overall structure of the telethonin protein is not known. The goal of this project is to use techniques in molecular biology to clone the TCAP gene, express and purify the telethonin protein, and subsequently use structural biology techniques to determine the complete structure of the telethonin protein.

## 30

### *In Patients with Lisfranc Joint Injuries, Is Magnetic Resonance Imaging (MRI), Computed Tomography Scan (CT Scan), or Radiography (X-ray) More Reliable in Correctly Diagnosing the Extent of Injury?*

**Kristyn Watts**

Mentor: John Burns, Kinesiology

WTE

When considering a Lisfranc injury, primary radiographs are typically the primary diagnostic tool used. However, primary radiographs are found to be inaccurate at diagnosing the presence of Lisfranc. When comparing a CT scan and radiograph, CT scan diagnosed 31% more Lisfranc injuries than radiographs. CT scan showed better joint anatomy and gave doctors a better idea of the extent of injury. The CT scan also showed additional occult fractures that were not visible on radiograph views. MRI, like CT scan, is more accurate at diagnosing the presence of Lisfranc injury as well. MRI has the capability to increase visualization of the status of the Lisfranc injury, identify associated fractures, and identify soft tissue injuries. There was no research comparing CT scan to MRI in the diagnosis of Lisfranc injury. However, both CT and MRI have described false-positives.

### 31

***In Patients Who Suffer from Subacromial Impingement Syndrome, Is Eccentric Exercise More Effective Than Modality Use at Increasing Function and Decreasing Pain?***

**Haley Nicole Reiff**

Mentor: John Burns, Kinesiology

WTE

Recent studies has proven that the utilization of manual muscle stabilization exercise, especially targeting the supraspinatus muscle/tendon complex, produces better outcomes than traditional conservative treatment. Furthermore, when modality usage is employed in conjunction with these manual muscle stabilization exercises results are optimized. It has been proposed that eccentric loading increases the strength, flexibility, and function of the supraspinatus muscle/tendon complex, and by performing these specific exercises function improves.

### 32

***Progress Toward the Synthesis of Dipyrryl- $\alpha,\beta$ -unsaturated Ketones***

**Ryan Haller**

Mentor: Sam Leung, Chemistry

WTE

The goal of this project is to synthesize a dipyrryl- $\alpha,\beta$ -unsaturated ketone that will be used as one of the precursors to an expanded oxophlorin. An expanded oxophlorin potentially can act a photosensitizer in photodynamic therapy (PDT) for cancer because it is expected to absorb visible light at a relatively longer wavelength than a typical oxophlorin or porphyrin. Previously we attempted to use aldol condensation reactions to synthesize a dipyrryl- $\alpha,\beta$ -unsaturated ketone but without success. Currently we are exploring the use of the Wittig reaction to accomplish this synthesis. Here we report the progress of the synthesis.

### 33

***Attendant Care at Family Service and Guidance Center: How One-on-One Attention Affects Children with Behavioral Issues***

**Delaney D. Zaborowski**

Mentor: Julie Boydston, Psychology

WTE

My internship was as an Attendant Care Provider at Family Service and Guidance Center (FSGC). The FSGC is a community mental health center that specializes in serving children and families' unique needs. As an Attendant Care Provider (ACP) my main duties were to provide one-on-one interventions to children and adolescents, facilitate meetings with parents, and coordinate services with other professionals. Through my experience at the FSGC, I have learned different mental health interventions and how successful they may be with different children. This internship has given me a hands-on insight to what the mental health field actually looks like. It has also confirmed my desire to keep working with children as I continue on with my career path.

34

***Central Kansas Foundation: My Experience in Screening for Substance Use in an Emergency Room Setting***

**Brittain Michelle Nance**

Mentor: David Provorse, Psychology

WTE

This research reviews past and present assessment tools used to identify substance use and abuse in an emergency room setting. While there are many tools utilized today to assess for substance use, the information provided will focus primarily on the SBIRT tool. This assessment is an evidence-based approach to identifying those individuals abusing drugs and/or alcohol. This tool consists of a screening, brief intervention and referral to treatment. This process concentrates on early detection of high-risk individuals. A brief intervention with a licensed professional is used to identify an individual's awareness of his or her behavior and motivation to change. I will discuss some of the available treatments options including intermediate residential, reintegration, and housed intensive outpatient.

35

***In the Shadows of Giants: Photographers of the Civil Rights Movement***

**Christian Sauerman**

Mentor: Connie Gibbons, Art

WTE

This presentation is over the trip to Mississippi and Alabama discovering events over the Civil Rights Movement. While comparing famous and influential photographers who documented the movement, traveling to spots where events have taken place over 50 years ago became difficult to photograph. The presentation will cover the past in comparison to the present through silver gelatin prints taken on the trip to digitally reproduced photos from artists of that era.

36

***Studying Abroad: Learning in the Community (LinC) Nicaragua Community Service Trip***

**Jenny Lynn Lieurance**

Mentor: Rick Ellis, Learning in the Community (LinC)

WTE

I studied abroad to Nicaragua this last winter break to learn more about poverty, history, and community service. I went with a group of fourteen other Washburn students and two Washburn faculty members. We left on January 1st, 2016 and returned on January 15th, 2016. I gained an insight of the world and my part within in it. We as a group went to see many nonprofits and gained knowledge on how poverty works in a third-world country. In my presentation I will discuss my experience and how it relates to my everyday life here in America. I will also discuss broadly how studying abroad has transformed me into a better person, student and Ichabod.

37

*Exploration of How Job Qualifications and Equal Opportunity Affect the Hiring Process*

**Jeri Billings**

Mentor: RaLynn Schmalzried, Psychology

WTE

After reading and synthesizing ten research articles, results were compiled that illustrate how job qualifications, job applicant background, gender, and race may play a role in an employer's decision to hire in the United States as well as in other countries. Through research gathered, gender stereotypes committed in hiring decisions tended to be consensual. Although in other countries, there is research to show that at times men were still the preferable hire over women, even when both applicants had similar credentials. This result may be due in part to the United States holding less of a gender stereotypic perception of women in leadership roles.

38

*It Is All About Who You Know. Networking to Get a Job*

**Casey A. Hughes**

Mentor: RaLynn Schmalzried, Psychology

WTE

Research tells us that between 60-80% of jobs are found through personal relationships. My plan is to expand on that research by demonstrating the most useful and accurate networking sites and the connections individual job seekers make to enhance those connections. Networking is a strategic component of any job search; it is social skill that requires preparation, nourishment and time. The goal by the end of the research is to determine the success rate networking has on employment, the perceived usefulness, the attitude toward using networking for job seekers and recruiters, and finally the perceived enjoyment. If you invest in building relationships to gain information about work that interests you and to connect with others, you may network your way into an ideal position sooner than one may think.

39

*Further Advancement and Optimization in the Synthesis of Dipyrromethanes with a  $\beta$ -Azo Linkage to Substituted Benzenes*

**Stephen P. Toth**

Mentor: Sam Leung, Chemistry

WTE

Porphyrins have been studied a significant amount in the medical science community due to their use as photosensitizing agents in a type of treatment known as photodynamic therapy (PDT). Over the past fifty years or so, several different kinds of porphyrins have been synthesized in order to achieve maximum potency in regards to the treatment. However, many of these synthetic macrocyclic organic molecules fall short of being considered an "ideal photosensitizer." One of the main qualities of an ideal photosensitizer is that it has a strong absorption in the red/near infrared region of the electromagnetic spectrum (600-800 nm). It has been shown that porphyrins with meso-azo linkages to a nitrobenzene have an absorption at ~692 nm. This research project aims to determine if this absorption remains the same or increases

when the azo linkage is moved to a  $\beta$ -position of the porphyrin. A series of experiments was performed in order to determine the optimal conditions for the reaction to produce a pyrrole with an azo linkage in the  $\beta$ -position to nitrobenzene. The subsequent reaction to synthesize the acetoxy-methylpyrrole was successful. However, this acetoxy-methylpyrrole proved to be difficult to work with because of solubility issues. Currently, work is being done on the synthesis of an acetoxy-methylpyrrole linked to a methoxycarbonylbenzene. This acetoxy-methylpyrrole with the azo linkage would then be reacted with an  $\alpha$ -free pyrrole to make a dipyrromethane which constitutes as half of the target porphyrin.

## 40

### ***Family Service and Guidance Center: Attending to Children with Severe Emotional Difficulties at the Crisis Resolution Program***

**Veronica Shafstall**

Mentor: Julie Boydston, Psychology

During my internship, I worked with children at the Family Service and Guidance Center resolution program. The mission of the Crisis Resolution Program is to assist children while they are undergoing an emotional difficulty and to reinstate them into a previous state of functionality. My internship duties included attending to the children while performing daily duties (such as cooking and cleaning), and I learned specific skills in emotional and mental intervention. This has influenced my career goals because it has positively affected my decision to work further with children with emotional difficulties in the future.

## 41

### ***CBT or ACT: Attractiveness of Therapeutic Intervention***

**Zachery L. Hinnergardt**

Mentor: David Provorse, Psychology

WTE

The purpose of this research is to investigate a potential source in the disparity between experiments comparing the efficacies of Cognitive-Behavioral Therapy (CBT) and Acceptance and Commitment Therapy (ACT). Early studies demonstrated ACT as inferior to CBT, but more recent studies demonstrate equal effectiveness (Avdagic, Morrissey, & Boschen, 2014). The hypothesis is that individuals who demonstrate higher trait-based mindfulness will provide more favorable ratings to ACT. This strong pre-existing belief in its efficacy will account for higher ratings of ACT's potential success. Individuals testing lower in trait-based mindfulness are hypothesized to find CBT to be the more appealing approach, with this pre-existing belief serving as a strong predictor of CBT's potential success. Participants will also be assessed for the presence of depressive and anxious symptoms to examine if there is a relationship between symptoms, preference of intervention, and the level of trait based mindfulness. With the growing popularity of mindfulness interventions in the practice of psychotherapy, this research aims to shed light on potential factors that influence the success of interventions focusing on cognitive-behavioral change versus mindfulness and acceptance.

## 42

### *The Effects of Personality Traits on Employability and Job Satisfaction*

**Tyanna S. Alderfer**

Mentor: RaLynn Schmalzried, Psychology

WTE

Certain aspects of the Big Five Personality Traits can be useful for job interviews and to help an individual ultimately become employed, but later on, can create job dissatisfaction. Other sub-traits can hurt the interviewing process, but have a significant relationship to job satisfaction. Breaking down the Big Five into their individual traits (extraversion, agreeableness, neuroticism, openness, and conscientiousness) they have been compared to job satisfaction and employability. Different studies have examined how these individual traits can disrupt the workplace by research compiled by the individual themselves, their peers, and their supervisors. Repeatedly, it has been supported that certain traits create job satisfaction by all individuals involved, and other traits result in typical dissatisfaction.

## 43

### *A New and Improved Undergraduate Psychology Program*

**Kristina Elisa Highlander**

Mentor: Michael Russell, Psychology

WTE

Many undergraduate students desire a variety in their choices and requirements for their degree. Students have expressed feelings of a lack of choices when it comes to the undergraduate psychology program at Washburn University. This led to the need to look at other schools and how their undergraduate programs are structured. I examined 18 Kansas colleges/universities (public and private, teaching-centered vs. research-centered). In addition to Kansas institutions, I reviewed what are considered to be the top five undergraduate psychology programs in the nation. Some of the criteria I incorporated were the major requirements, types of classes, electives offered, how often certain courses were offered, and the variety or flexibility within the major. Some universities were found to have programs that mirror the program available here at Washburn while others have unique and notably different programs. Participants were psychology majors at Washburn University who were asked to complete a short survey (consisting of 21 questions). The purpose of the survey was to determine student satisfaction with the current program as well as to gauge student interest in possible alternatives. The results collected will be used to help make important decisions in reshaping the current undergraduate program offered at Washburn University so that it better reflects student interests, preferences, and ambitions.

## 44

### *Evidence Based Research Project Topic: Orthotics in the Treatment of Plantar Fasciitis*

**Paul J. Stueve**

Mentor: John Burns, Kinesiology

WTE

Plantar fasciitis is a relatively common and often debilitating condition which patients often struggle to overcome. Many patients look to foot orthoses to help alleviate their symptoms. The

question is to compare inexpensive prefabricated orthotics with expensive, custom fit orthotics, in their effectiveness in managing pain. This is an important aspect to look at because pain is the symptom of plantar fasciitis that makes it a debilitating issue. After researching this issue, it has been found that there is a significant improvement in pain with both orthotics, but there is no difference between the two groups. In conclusion it has been found that since there is no significant difference between the management of pain, the inexpensive, prefabricated orthotics should be given to patients suffering from noncomplicated plantar fasciitis.

## 45

### *Trading Effectiveness for Efficiency: Methods of Classroom Quizzing*

**Eileen E. Joy, Brian Stran, and Kelsey M. Moffitt**

Mentor: Cindy Wooldridge, Psychology

How can teachers improve student outcomes using testing effects without the high investment of time and labor associated with standard quizzing? Exam performance in six undergraduate courses was assessed following four quiz conditions. The quizzing strategies ranged in the investment of time and labor required by the instructor and included questions that were written by either the students or the instructor. Results showed that quiz questions written by the instructor demanded greater relational processing than student-written questions. Students also reported lower anxiety associated with exams, higher attendance, and greater effort with quizzing.

## 46

### *How Social Media Affects Group Cohesiveness Between Collegiate Athletic Teams*

**Ryne J. Dowling**

Mentor: Kevin O'Leary, Communication Studies

WTE

The use of social media is everpresent, especially for traditional college students. College sports remains a "big business" for schools and is of interest to many college students, including the athletes who make up these teams. This study will seek to understand the positive and negative impact of Twitter as a medium for communication on the cohesiveness (or not) of communication on collegiate athletic teams. From initial observations, cohesiveness between athletes as well between athletes and their coaches has been affected by the introduction of Twitter as a means to communicate. This study will employ the use of surveys as well as participant-observation. The study aims to produce a better understanding of a still emerging communication medium, Twitter, which has become an important means to communicate for many college athletes as well as their coaches. The study also aims to produce a better understanding about the nature of cohesive communication (or not) on collegiate athletic teams, which could benefit such phenomena as team bonding and team cohesion.

47

***The Repetitive Trauma of Running and Iliotibial Band Friction Syndrome as a Result***  
**McKensie A. Bevens**

Mentor: Karen Garrison, Kinesiology

*H WTE*

Iliotibial band friction syndrome (ITBS) has been commonly associated with long distance running because of its high prevalence within the running community. It is an inflammatory condition of the lateral knee, often treated with conservative measures such as NSAIDs, rest, ice compression, etc., like most other inflammatory conditions. However, these methods are often unsuccessful in treating the pain, especially in the long-term. Other methods, such as gait retraining need to be considered for their effectiveness in treating this stubborn and reoccurring injury.

48

***Analysis of Melamine in Pet Foods Using Gold Nanoparticles and High Performance Liquid Chromatography (HPLC)***

**Aaron M. Hummert**

Mentor: Seid Adem, Chemistry

*WTE*

A solution of uniformly dispersed gold nanoparticles (AuNPs) was synthesized by reduction of gold chloride with sodium citrate to serve as a colorimetric sensor for detection of melamine in pet foods. The method validated in this study shows a sensitive, repeatable, and very simple procedure to detect melamine in food products that can be used in field-portable settings without the need for expensive laboratory equipment. The interaction of this colorimetric probe is due to the unique optical properties of AuNPs. When in the presence of melamine, there is a specific shift of the absorbance to higher wavelengths due to aggregation of particles. The AuNP solution changes from wine red in its dispersed state to purple when particles are aggregated. This allows for a rapid detection by the naked eye. This study also developed a reliable method for melamine detection in pet food. The melamine was extracted using acetonitrile: water (50:50, v/v), purified through 0.22- $\mu$ m filters, then passed through a C-18 column with a polar mobile phase (methanol:water:acetic acid, 38:61:1). A standard calibration curve of melamine concentration was calculated for aqueous solution and food matrix samples, with R<sup>2</sup> values of 0.999 and 0.997 respectively. The percent recovery in food samples spiked with melamine ranged from 93-108%. Using these two methods in combination can provide for more rapid detection, followed by quantification of the melamine in pet foods.

49

***Perception of Optimal Reaching Distance: Comparison of Visual and Auditory Judgments***

**Caitlin A. McGee**

Mentor: Michael Russell, Psychology

*WTE*

Affordances reflect the objects (living and nonliving) in the environment and refer to what it offers the animal, what it provides or furnishes, either for good or ill. That is, affordances refer to the actions that can and cannot be performed with the environment. To date, a number of studies



have involved the investigation of body-scaled and action-based affordance judgments. However, the vast majority of those studies have required participants to judge the minimum (e.g., smallest gap that affords passage) or maximum (e.g., the highest surface that can be stepped upon) possible. In contrast to those studies, the present study examined optimal (preferred) organism-environment relationship. Everyday, we put objects (e.g., coffee cup) down knowing we will shortly pick them up. It is expected that we would put the object at the most comfortable reaching distance. Participants in this study judged the degree to which a target (presented at various random distances) was the most comfortable reaching distance. Half of the trials were based on audition and half on vision. Perceptual differences between modalities was determined (i.e., vision- and audition-based judgments were compared) as well as the degree of relatedness between perceived and actual preferred reaching distance. Discussion will be given to the extent to which perceiving-acting organisms take into consideration comfort when acting in real-world settings.

## 50

### *The Impact of Extracurricular Involvement on Career Outcomes*

**Quentin McGrath**

Mentor: RaLynn Schmalzried, Psychology

WTE

I will be examining the impact that involvement in extracurricular activities has on acquiring job skills. Extracurricular activities will be split into categories such as sports, leadership groups, and volunteer work. Research done on these extracurricular activities show how much employers value extracurricular activities when they are looking for potential employees. Also, there is research on why students do extracurricular activities, whether it is because they are motivated to do it to gain valuable skills that employers are looking for, or because they want to do it for internal purposes like having fun or for the social aspect of them. I will analyze ten scholarly articles about this topic and explain how they all relate and show how extracurricular involvement can affect future job prospects. I will also analyze what kinds of skills are gained through doing extracurricular activities while growing up. Results will show that extracurricular involvement does in fact have an impact on career outcomes because it will help them gain valuable skills that will help them in their future careers. I will examine which skills are improved more through these activities and which don't really change.

## 51

### *Adjustments to Wii Step that Increase Calorie Use*

**Jessica R. Thompson and Marija K. Crockett**

Mentor: Tracy Wagner, Biology

WTE

Many individuals have interacted with the Wii® (Nintendo® active gaming system.) It was touted as a way to increase activity among sedentary and older individuals. One of its features is to track time exercised and calories utilized during the aerobic set of exercises. However, the calorie expenditures are based on a formula that only considers weight and time spent exercising. This allows for a wide variation between reported and actual calories used, particularly as weight of the subject increased. One commonly used method for recording actual calorie usage is converting oxygen consumption to calories burned. In the laboratory this was done using the Oxycon Mobile®. Preliminary data indicates that increasing step height (from 2" to 5") and step

speed (1600 to 2000) will increase calorie use above the levels reported by the Wii®. This data is corroborated by additional data collection of heart rate and Rating of Perceived Exertion (RPE), both of which increased in subjects during the experimental run. This information could be important for those using the Wii® to increase activity levels or as a form of therapy to help prepare for “real life” physical demands.

## 52

### *Defining the Role of YhdP in Maintaining Magnesium Homeostasis in Bacillus subtilis*

**Hannah N. McIntyre**

Mentor: Andrew Herbig, Biology

Magnesium ( $Mg^{2+}$ ) is the most abundant divalent cation in living cells. This metal ion plays a major role in a number of cellular functions including transcription, translation, and energy production. In prokaryotes, the MgtE and CorA superfamilies act as transporters for bringing  $Mg^{2+}$  into the cell. Recent research has identified a possible  $Mg^{2+}$  efflux transporter encoded by the yhdP gene in *Bacillus subtilis*. This Gram-positive, soil-dwelling bacterium provides a good model for studying  $Mg^{2+}$  homeostasis. The YhdP protein has homology to putative  $Mg^{2+}$  efflux transporters in *Salmonella enterica* serovar Typhimurium. We hypothesize that YhdP could act to protect that cell from toxic concentrations of  $Mg^{2+}$ . *B. subtilis* cells lacking YhdP exhibit lower plating efficiency on minimal media agar with 100 mM  $Mg^{2+}$  than the wild-type,  $\Delta$ mgtE, and  $\Delta$ mgtE $\Delta$ yhdP strains. Lower growth rates of the yhdP mutant are also seen in liquid minimal media with 100 mM  $Mg^{2+}$ . The yhdP mutant also shows a delay in recovery following shock with a high concentration of  $Mg^{2+}$ . These results support the hypothesis that YhdP acts as a means of transporting  $Mg^{2+}$  out of the cell. Further research will study the expression of the yhdP gene under various growth conditions.

## 53

### *Accelerated Rehabilitation in Patients with Achilles Tendon Ruptures*

**Briana D. Cozart**

Mentor: Karen Garrison, Kinesiology

WTE

Eccentric weight bearing rehabilitation is the most mentioned conservative treatment for Achilles tendon ruptures. There are several functional scales to objectively and subjectively observe results from patients receiving these treatments: the Victorian Institute of Sport Assessment-Achilles (VISA-A), American Orthopaedic Foot & Ankle Society (AOFAS), and the ATRS. There was more research found with this specific injury and treatment using the ATRS, short for Achilles Tendon Rupture Score. The rehabilitation process is the most important part of the healing process of an Achilles tendon rupture. Because there is not one specific protocol conservatively or surgically, there are many studies comparing the treatment options with no definitive results. These functional scales and scores make it easier to notice the differences and try to choose a better treatment option. Overall from these studies, accelerated eccentric rehabilitation compared to standard rehab had a better ATRS. Males progressed faster than females in their rehabilitation. Between the surgical and nonsurgical groups, there were no significant differences.

54

*Rumination and Behavior in College Students*

**Shah D. Vidhi**

Mentor: RaLynn Schmalzried, Psychology

WTE

This research focuses on how college students are affected by rumination. I wonder if students who are actively ruminating tend to do poorly in school versus the students who do not ruminate. Many students suffer from depression, anxiety and stress, which can be a reason to why the students ruminate. Rumination is a thought process, which is generally uncontrollable in the mind of the victim, and they consist of negative, passing, and harsh thoughts. These thoughts may appear at any given time and place, without warning and sometimes it may be due to certain words or situations they hear in the environment. I expect this research to find that students mostly ruminate when they hear or see something that caused the trauma in the first place. Due to this, students may lose focus of what they are learning in school, engage in reckless behavior and such. Consistently ruminating on a situation can possibly further damage the cognitive-thought process, essentially leaving the victim to continue their path of negative, passive and harsh thoughts. This can lead individuals to give up on the current things in life, so they can focus more on their problems (which is just harming them further). This paper covers what rumination is, why people engage in it, which are most likely to be affected by this, and how rumination affects college students.

55

*French Education through the Lens of Film*

**Thalia Fenton**

Mentor: Courtney Sullivan, Modern Languages

WTE

Education is a hotly debated topic in French media, pedagogy even more so. This presentation focuses on two French films, *Entre Les Murs* (2008) and *Les Heritiers* (2014), which tackle problems that arise in the classroom setting in an increasingly multicultural France. The films are alike but also different even though they explore the same topic of education. This project analyzed the films to reveal how the directors used different techniques to highlight the diversity and educational experience youths encounter in France. My analysis is focused on four critical elements: language, space, music and symbols. Both directors use language, and in French there are varying levels of formality which show different social classes that reveal their origins. Another element is the space of *Entre les Murs*, which literally means between the walls. *Les Heritiers* uses a powerful sound track to both draw out and pull the audience through the emotions of the film. Lastly, French symbols are seen throughout *Les Heritiers* to demonstrate the secularism in France. Both films highlight a multicultural France and a broken education system.

**56**

***Engaging Communities with Nutritional Education***

**Sarah M. Dempster**

Mentor: Kathy Ure, School of Nursing

WTE

Working alongside the executive director of El Centro of Topeka a nutrition class will be organized through Harvesters in order to implement a cooking class. The target population for this project is the Hispanic population among the El Centro community. The goal is to teach healthy cooking on a budget to empower individuals to live healthier lifestyles. To measure the benefits of the class the participants were asked to fill out a pre survey and post survey. This survey will be given to measure each participant's likelihood of implementing the skills and knowledge into their daily lives to improve their eating habits. The survey will evaluate the knowledge deficit needs that were met, knowledge deficit needs that were not met, relevancy of knowledge gained, and knowledge participants would have liked to gain. Through nutritional education this community will be enabled and empowered to improve their own eating habits and provide support for each other while improving their lifestyles.

**57**

***Supernanny to the Rescue: The Gold Standard of Parenting***

**Christopher S. Gordon**

Mentor: Tracy Routsong, Communication Studies

WTE

In the television series, Supernanny, parents are observed and critiqued, using Baumrind's parenting styles. Ten couples were analyzed for parenting behavior using qualitative content analysis. The researcher analyzed pre- and post-parental behavior. Results suggested that after Supernanny's visit, parents utilized a more authoritative approach versus other styles used during the pre-visit.

**58**

***Teaching That Works: Classroom Observations***

**Christopher S. Gordon**

Mentor: Tracy Routsong, Communication Studies

WTE

There is much literature supporting parenting styles and how it impacts a child's self-confidence and future success. Using Baumrind's parenting styles, this study looks to see what approach can be observed in a kindergarten classroom to promote positive behavior. Findings include similar strategies to authoritative parenting styles, including offering choices, setting limits, encouraging independence, and enforcing discipline with positive reinforcement.

## 59

### *Verifying Mycorrhizal Colonization Using a Simple and Non-toxic Staining Method* **Miranda Billings, Kayla C. Oldham, and Shawna Rae Bitts**

Mentor: Jason Emry, Biology

Mycorrhizae represent a symbiotic relationship between a fungus and plant roots. This results in a mutualistic interaction in which the fungus gains carbon energy from the plant while the plant has an increased uptake of water and inorganic nutrients. Though prevalent, these mycorrhizal relationships are difficult to visualize, often requiring staining methods which use toxic and/or carcinogenic stains. We replicated an ink-vinegar staining method developed by Vierheilig et al. (1998) in order determine if this low-toxicity method could be used to verify the colonization of plant roots by fungal hyphae. Rye grass was grown and treated with a commercial mycorrhizal formula every week. Root samples were taken after 2, 4, and 6 weeks' growth and stained using three different color inks to determine which provided the greatest contrast between plant cells and fungal hyphae. Blue ink washed out easily and provided little to no contrast. Black and red inks both worked well, but the black ink showed the best contrast. Early samples showed little evidence of mycorrhizal colonization so field samples of similar species were collected and stained. Both late rye and field samples showed clear evidence of fungal hyphae, vesicles, and arbuscules, but rye samples had a lower rate of colonization. Identifying a simple, non-toxic staining method for mycorrhizae allows for further research investigating the role that this relationship can play in other ecological interactions.

## 60

### *Freedom Riders in the Past and Present*

**Katie Ridgeway**

Mentor: Connie Gibbons, Art

WTE

For my project, I will be focusing on the Freedom Riders and their effect on the Civil Rights Movement. My project will review their strategies and some of the feelings of the riders and how they decided this was the way to stand up for their freedom and human rights. Throughout the journey of the Freedom Riders they experienced very difficult moments during their time. They stood up for what they believed was right because they wanted change. For my project I will be presenting how the Freedom Riders felt and their motivations. My project will also reflect on how the Freedom Riders are doing now and how their lives have changed. My message that I want to present to my audience is that "The Movement is not over. We need to continue to educate ourselves and others, even small acts that will help us move to a society where equality is the most basic human right."

## 61

### *Bettering the Lives of the People of Nicaragua: One Road at a Time*

**Cheyenne L. Price**

Mentor: Rick Ellis, Human Services

WTE

The Nicaragua study abroad experience was incredible. The service project that the small group of us was sent to Nicaragua to accomplish consisted of fixing a road that another Washburn

group had built for the people of El Limon the year before. This road meant a lot to these Nicaraguans and to us. We were blessed with the opportunity to be able to work alongside these hardworking people to accomplish a common goal. The feeling of doing good for these people and bettering their lives through simply building a road is the best reward we could ever receive.

## 62

### *Assessing How Honeysuckle Control Efforts Affect the Composition of Understory Plant Communities in Topeka Parks*

**Kristen R. Bontrager**

Mentor: Jason Emry, Biology

Invasive species are a growing problem in a number of habitats. With no natural predators, early spring leaf emergence, and bird-dispersed seeds, Honeysuckle (*Lonicera*) has a competitive advantage over native understory species in Kansas forests. Shawnee County has used late-season glyphosate application to slow the spread of honeysuckle within Topeka Parks. However, it is unclear if this intensive treatment will increase the reestablishment of native species. In this study, we investigated plant communities in two different Topeka parks to determine whether species richness or composition differed among the communities growing beneath honeysuckle that had been mildly, moderately, or severely affected by herbicide application. Treatment severity affected community composition at both sites but did not affect species richness. Composition changes were greatest at Dornwood Park where severely affected areas had significant decreases in honeysuckle cover and increased cover of both vines and grasses. McLellan Park showed similar trends, but only honeysuckle cover differed among treatments. While not significant, severely treated patches at McLellan also had reduced cover of other plant taxa compared to mildly or moderately affected patches. This study shows that the current management program effectively reduces honeysuckle in Topeka's parks. However, our results also provides a cautionary note that unintended consequences are possible.

## 63

### *Broadening Access to Cycling in Topeka through Hands-On Education and Bike Repair*

**Katie Snider**

Mentor: Kristine Hart, Learning in the Community (LinC)

WTE

The Topeka Community Cycle Project (TCCP) is a nonprofit, volunteer-run organization that focuses on bringing bicycle awareness, advocacy, and education to Topeka. The organization's mission is to broaden access to cycling in Topeka through hands-on education and bike repair. However, the TCCP actually has a much bigger impact on the community in that it focuses on promoting self-reliance, sustainability and healthy living in Topeka through the recycling, repurposing, and distribution of bicycles. This presentation will cover the programs offered by the TCCP, the organization's impact on the community and what I have learned in my three years there as I moved from being a shop volunteer to the Outreach and Programs Assistant to an Operations Committee member on the TCCP Board of Directors.

## 64

### *What We Know About How We Perceive Space by Sound Is Based on a World Unlike Our Own*

**Stephanie M. Brown**

Mentor: Michael Russell, Psychology

WTE

Auditory spatial perception involves the perception of distance, azimuth (left-right angle), and elevation (up-down angle). Historically, scientists investigating auditory spatial perception have employed a very particular (i.e., restrictive) methodology and situation. In order to maximize internal validity, particular sounds, settings, and tasks have been selected. However, it could be argued that the methods commonly employed in laboratory investigations have resulted in the creation of a circumstance that is dissimilar to that encountered in the real world. The present study involved an extensive literature review of empirical investigations relating to the auditory perception of distance or azimuth. The results revealed massive differences between how auditory spatial experiments are conducted in the laboratory and the settings commonly inhabited by perceiving-acting organisms. It is concluded that (1) the information presented in textbooks is expectedly incorrect and (2) little to nothing is actually known about how individuals know the location of unseen sound sources in real-world settings. An alternative (ecological) approach is proposed and described so as to enhance our true understanding of how perceiving-acting individuals perceive the spatial position of sounds in everyday settings.

## 65

### *Establishing a Baseline of Tree Diversity and Land Cover on the Washburn University Campus*

**Peter Andrew Celuch and Meaghan Conant**

Mentor: Jason Emry, Biology

Urban forests are becoming widely recognized for the important role they play in minimizing pollution, controlling water runoff, reducing surface air temperatures, and providing habitat for urban wildlife. As campus development continues, it is important to consider how each of these attributes may be affected. The goal of this study was to establish a baseline of various land cover types within the Washburn University campus, ranging from tree canopy to impervious pavement. We used a combination of iTree software and Google Earth Pro to identify random sample points throughout campus and classified cover type through satellite imagery. A subset of these points were ground truthed by recording the number and species of trees present in a 10-meter radius circle. As of March 2016, the most common cover types within campus were impervious surfaces (i.e. buildings and paved areas) covering 43% of campus area. Of the remaining land cover, 15% was tree canopy, 40% was grass and 2% were shrubs and small vegetation. We found Washburn to have a total of 38 species from 15 families. Individual dominance was 0.057 indicating that no single species was disproportionately represented. Both species and family dominance were relatively low, indicating that taxa were equally represented. Now that a baseline has been established these data will become particularly useful to monitor the positive effects of rain gardens and other mitigation projects on campus.

## 66

### *Implementing a Lay Navigator into a Community Outreach Program*

**Jennifer Allende**

Mentor: Kristine Hart, Learning in the Community (LinC)

WTE

Washburn University's School of Nursing has provided community outreach using a Mobile Health Unit since 2012 to a medically-underserved population in east Topeka, KS. Due to the success and growing demands of this community, the service has continued and added students from other schools in the University including physical therapy, occupational and respiratory therapies, social work, psychology, and kinesiology. For many years the El Centro de Topeka has benefited from the services that have been provided and now the next step is to train community members to be health navigators and provide the community with services throughout the year. Although care will be provided during semester periods, these health navigators will operate during the periods that students are not available. This study will be focusing on the Latino population in the areas of nursing and physical therapy, as well as discussing the lay navigator's process of training.

## 67

### *Evaluating Immigrant Mental Health Barriers Through Analysis of Clinician Perceptions and Treatment Approaches*

**Shelby N. Fehrenbacher**

Mentor: Jericho Hockett, Psychology

WTE

The U.S. Census Bureau estimates that by the year 2020 14% of the United States population will be made up of non-citizen immigrants. Many health care facilities in the United States still lack essential skills in cultural competency in order to assist immigrants including knowledge of culturally-sound treatment approaches and training on language-adequate care and in-advert racial stigmas. The purpose of this research study was to evaluate general cultural competence, language anxieties, and racial prejudices and their effects on current and future clinician perceptions. These perceptions could provide valuable insight to treatment options and outcomes for immigrant clients in mental health, understanding of immigration policy and the link it has to clinician-client relationship, and future outlooks of immigrant stigmatization. Results and implications of the specific study will be discussed.

## 68

### *Circles: An Allied Hand for Leaders Climbing Out of Poverty*

**Shelby N. Fehrenbacher**

Mentor: Michael Gleason, Leadership Institute

WTE

Circles of Greater Topeka, a division of Circles USA, is an anti-poverty initiative with a unique and effective model. Thriving on leadership principles, Circles USA promotes the celebration of small wins along the way to the big goal, fostering every individual's ability to participate in leadership anytime, anywhere and many other leadership competencies. Circles empowers dedicated individuals by creating a community of allies and resources to surround Circle Leaders as they make their way out of the poverty threshold and into sustainable living. The Big View



team within Circles is designated to focus on the larger issues surrounding poverty such as income cliffs within assistance programs and the many systematic barriers that foster a never-ending cycle of poverty. By researching, understanding, and educating others about these issues the members of this team work towards a more equal-opportunity future for all class levels.

## 69

### *Serving Individuals and Families at Midland Care Connection*

**Mariah K. Cunningham**

Mentor: Kristine Hart, Learning in the Community (LinC)

WTE

I have spent the last three years volunteering at Midland Care Connection as a LinC Bonner Leader Scholar. This experience has allowed me to expand my learning opportunities beyond the Nursing School curriculum. I have worked with many populations and experienced many multidisciplinary opportunities to serve others. I have gained experience in hospice care, palliative care, respite care, vigil care, bereavement services, volunteer management, fundraising, and even being a youth mentor. This experience expanded my knowledge about the not-for-profit sector and grant writing. It has increased my interest in becoming a civically-engaged citizen. I will present my work with this organization specifically and the overall impact of being a Bonner Leader has had on my life.

## 70

### *ProNica, Experiencing Nicaragua from a Service Perspective*

**Mariah K. Cunningham**

Mentor: Rick Ellis, Learning in the Community (LinC)

WTE

I spent two weeks learning about the grassroots organization, ProNica, and its mission to build cross-cultural sustainable relationships between the people of Nicaragua and North America. My presentation presents partnership organizations visited throughout Nicaragua that work toward community cohesiveness, economic development, education, health, sustainable agriculture, and women's empowerment. The political and historical barriers presented throughout Nicaragua's history reflect the importance of these organizations and generating sustainable change.

## 71

### *Connecting Hunger to Healthcare through Harvesters and the Marian Clinic*

**Marija K. Crockett**

Mentor: Kristine Hart, Learning in the Community (LinC)

WTE

The Marian Clinic and Harvesters are non-profit organizations that strive to provide basic services for those struggling with poverty in Topeka. The Marian Clinic provides health services for the uninsured, while Harvesters provides food for the hungry through their various programs including BackSnack and Senior Food Commodities. Through my direct work with each of these organizations I have learned that the issues of healthcare, hunger, and poverty are all interrelated. Children, families, and seniors in our Topeka community experience poor health due to their limited access to healthy food. In the area that Harvesters serves, there are 382,000 people who are food insecure. The Marian Clinic served over 2,000 uninsured patients in 2015. The goal of

both Harvesters and the Marian Clinic is to end the issues of food insecurity and lack of proper healthcare here in Shawnee County.

## 72

### ***Title: Isolation and Analysis of Two Bacillus subtilis Bacteriophages from Soil***

**Wesley M. McDonough and Bailey M. Wobig**

Mentor: Andrew Herbig, Biology

Bacteriophages (phages) are viruses that specifically infect bacteria and are the most abundant microbes on Earth. Lytic phages replicate within the bacterial cytoplasm and kill their host following replication. For this reason, phage research has most recently turned towards using these viruses as alternatives to antibiotic therapy and means of controlling food-borne pathogens. The purpose of this study was to isolate and characterize phages that infect *Bacillus subtilis*, a soil-dwelling bacterium that is a food product contaminant in many countries. Three soil samples from farmland in southeast Kansas were collected and enriched for phages with a culture of *B. subtilis*. After a weeklong incubation period, the enrichment was filtered, used to infect an overnight *B. subtilis* culture, and then plated using the double agar-layer method. We isolated two lytic bacteriophages, designated Belknap Phage and Daisy Phage, from two of the three soil samples. Titers were  $1.62 \times 10^8$  pfu/mL for Daisy Phage and  $4.7 \times 10^8$  pfu/ml for Belknap Phage. DNA was extracted from each phage and used for restriction digest analysis, which can help further characterize the phages. In order to identify Phage B and Phage W's host range we tested *Bacillus cereus* but found no infection of this species. Future characterization will include extended host range analysis of other *Bacillus* species and phage protein comparative analysis.

## 73

### ***Assessing the Potential to Use Pieris Rapae to Study the Effects of Learning on Ovipositional Behavior***

**Hunter D. Showalter**

Mentor: Rodrigo Mercader, Biology

Although learning by plant feeding is expected to be limited, the potential for learning to significantly impact ovipositional behavior and therefore the evolution of insect-plant interactions is strong. Here we attempt to establish a study system using the cabbage white butterfly, *Pieris rapae*, a plant feeding specializing on plants in the Brassicaceae family. Specifically, we assess a flexible experimental design to identify the capacity of cabbage white to learn color association and provide detectable ovipositional behaviors to assess. We subjected cabbage white butterflies to choice assays between red (uncommon host color) and green (common host color) cabbage (*Phaseolus vulgaris*). Groups of females were separated a day before the choice assay and either a green host or a red host introduced. Assays were performed on females ranging in age to see how that would affect the butterflies ovipositional choices. Assays indicated that the butterflies preferred the color of the host experienced. Results suggest this experimental setup can be used to study the effect of learning and interactions with other variables on the ovipositional behavior of the cabbage white butterfly.

74

***Isolation of the Azamacrocycles Formed from the Detosylation of Cyclic Tosylamides***  
**Paul Matthew Heffren**

Mentor: Shaun Schmidt, Chemistry

Azamacrocycles are used in medical imaging and treatment. The synthesis of these structures requires that the amine groups in the structure be protected from side reactions. The deprotection from tosylamide to amine is problematic in either the reaction or the isolation from crude product. In order to study the isolation, diethylenetriamine was selected as a model for extraction from a simulated crude aqueous reaction mixture. The efficacies of several organic solvents were examined by extracting known amounts of diethylenetriamine from aqueous phase using a separatory funnel. Dichloromethane and chloroform were determined to recover the greatest percentage of diethylenetriamine from the aqueous solution, but produce only 3-4% efficiency. By titrating diethylenetriamine with hydrochloric acid, the pKa values were determined. This was done to ensure that the extraction procedures were producing a deprotonated amine, leaving it uncharged and easier to extract. Finally, a liquid-liquid continuous extractor was shown to further increase recovery to 29% after five days of continuous extraction.

75

***Making a Difference at University Child Development, Inc***  
**Apoiliu Milo**

Mentor: Kristine Hart, Learning in the Community (LinC)

WTE

University Child Development (UCD) is a nonprofit organization that primarily provides child care services to Washburn University students, staff, and faculty. It is a second home for any child who enters its doors. Its goal is to provide sufficient structure to give security, and yet enough freedom for creativity. They do this by providing an environment where the children can feel accepted while engaging in experiences that broaden and enrich their learning and social development. During the 2015-2016 academic year, I served as a teacher's assistant at UCD. While there I learned about the impact that caring adults can have on the personal and educational outcomes of the children. This presentation will describe the UCD program, my work, and what I accomplished and learned about my community through this program.

76

***DbpA Activity and Role in Ribosome Assembly in E. Coli***  
**Jessica M. Tharp**

Mentor: Lisa Sharpe Elles, Chemistry

Ribosomes are responsible for synthesizing proteins in the cell and are therefore, crucial to cellular function. Because of this importance, ribosome synthesis is a highly-regulated process that often involves assembly factors or chaperones that assist in proper folding of the ribosomal RNA and the individual subunits. One assembly factor, DbpA is a DEAD box, ATP-dependent RNA helicase that binds to a small segment of rRNA prior to final assembly. The specific role of DbpA in assembly in vivo is unclear, and cells with a DbpA deletion grow normally making it difficult to determine DbpA's role in the process. The goal of our project is to learn more about

assembly of the 50S ribosomal subunit by further exploring the role of DbpA both in vivo and in vitro. Our results so far suggest that DbpA may be needed under stress such as in the presence of minimal nutrients. Additionally, we plan to assess wild type and mutant DbpA activity in vitro under different conditions to better understand how DbpA works.

**77**

***Family Service and Guidance Center: Assisting Youth at Home, in School, and in the Community***

**Kevin Michael Knak**

Mentor: David Provorse, Psychology

WTE

The Family Service and Guidance Center is an organization focused on improving family life for youth. The organization focuses on developing socially acceptable behaviors for youth. The Youth Development Program at the agency works with youth in social settings at the agency and in the community. As a group leader, my task is to organize activities and redirect unacceptable behaviors with the kids. The youth graduate from the group once they have completed their goals that they set to work on.

**78**

***GoBoard Pro Implementation***

**Briana Heinen**

Mentor: Lauren Edelman, Leadership Institute

WTE

As the digital age expands and paper-saving applications develop, businesses are forced to decide whether or not these applications are worth the time, effort, and resources. Through my previous internship experience with KU Recreation Services I was given the opportunity to lead the implementation of a paper-saving resource, GoBoardPro. Based on that previous experience I was then given the opportunity to evaluate this program in regard to Washburn's Student Recreation and Wellness Center (SRWC). I will assess if the GoBoardPro program is worth investing the money and resources in order to bring the SRWC paperless.

**79**

***The Role of the UL34 Protein of the Herpes Simplex Virus Type 1***

**Gentry K. Cork**

Mentor: Susan Bjerke, Biology

Herpes Simplex Virus Type 1 (HSV-1) is one of the most common members of the herpesvirus family and infects approximately 90% of the general population by adulthood. Current drugs target the replication step of the HSV-1 life cycle; however, these drugs are less effective for the other eight human herpesviruses. New drug research is targeting the exit of newly assembled herpesviruses from the nucleus, which is a crucial step in the life cycles of all human herpesviruses. The mechanism for nuclear exit is unknown, but gene knockout experiments have determined that the transmembrane viral protein UL34 is necessary for aviral capsids to bud into the perinuclear space. We utilized pulldown assays using purified, tagged UL34 protein and mammalian cell lysates in order to determine what cellular proteins were interacting with UL34.

We were able to successfully pulldown UL34 using a GST tag on multiple occasions. Though no unique interaction partners have been identified yet, an SDS-PAGE gel has showed a unique protein band in the UL34 lane that was not present in the control lane. Future directions include repetition of the pulldown experiments to obtain repeatable results, and troubleshooting of the lysate, protein, and buffer concentrations to optimize the member protein interactions occurring in the *in vitro* system.

## 80

### *The Discrepancies Between Careers of Individuals with Mental and Physical Disabilities*

**Desiree Branick**

Mentor: RaLynn Schmalzried, Psychology

The point of this study is to discover the differences between those being hired with a mental disability versus those with a physical disability. The research found that those with a physical disability are more likely to receive a job than those with a mental disability based on the benefits made available to the company by the government. Even though there are rules and regulations made by the ADA preventing discrimination or biased opinions, there are still issues with employers hiring someone with a mental or physical disability due to personal biases.

## 81

### *Role of Anxiety in Job Interview Setting*

**Allison M. Colonna**

Mentor: RaLynn Schmalzried, Psychology

WTE

Anxiety presents numerous distractions in the job interview process and in general, appears to make candidates less likely to get the position which they are applying for. In addition to discussing the problems which anxiety presents, I will also analyze research which demonstrates techniques to manage such anxiety.

# *Reception*

## A Taste of India

Vegetable and Potato Samosas

Cucumber Raita

Palak Paneer

Vegetarian Biryani

Tandoori Chicken

Kheer

Masala Chai



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