

Apeiron 2011

A Forum of Student Research, Scholarship, and Creativity



Washburn
Apeiron
University
απειρον

The Apeiron is an ancient term offered by Anaximander of Miletus in the 6th century B.C. that embraces the spirit of this forum. As with the Apeiron, which is infinite and boundless, all inclusive, eternal, and unaging, this forum is designed to be inclusive with respect to student research, scholarship, and creativity. It is dedicated to the proposition that students are capable of work that knows no limits and transcends all boundaries.

Each student participant in the Washburn University Apeiron has worked on his or her project under the supervision of a faculty mentor. The projects, which have been reviewed by the faculty, demonstrate creativity, originality, and a level of work superior to that normally expected of students. Today's presenters exemplify the spirit of the Apeiron.

☞ The Greek Alphabet ☞

A α	Alpha	N ν	Nu
B β	Beta	Ξ ξ	Xi
Γ γ	Gamma	Ο ο	Omicron
Δ δ	Delta	Π π	Pi
E ε	Epsilon	Ρ ρ	Rho
Z ζ	Zeta	Σ σ	Sigma
H η	Eta	Τ τ	Tau
Θ θ	Theta	Υ υ	Upsilon
I ι	Iota	Φ φ	Phi
K κ	Kappa	Χ χ	Chi
Λ λ	Lambda	Ψ ψ	Psi
M μ	Mu	Ω ω	Omega



April 22, 2011

Schedule of Events

- 10:30 a.m. – 11:00 a.m. Student Registration and Poster Setup
Mabee Library
- 11:00 a.m. – 12:45 p.m. Fine Arts Performance Session
Mulvane Art Museum
- 1:00 p.m. – 3:00 p.m. Oral Presentation Session
Henderson Learning Resources Center
- Session α: Room 103 • Session β: Room 107
 - Session γ: Room 118 • Session δ: Room 203
 - Session ε: Room 207 • Session ζ: Room 208
 - Session η: Room 217
- 3:00 p.m. – 3:40 p.m. Welcome
Shaun Schmidt, Chair, Apeiron Committee
Mabee Library
- Recognition of Student Designers
Katelyn Hampson and Jeffrey Dailey
Regina Cassell, Apeiron Committee
- Introduction of Last Lecture
Donna LaLonde, Associate Professor,
Department of Mathematics and Statistics
- Last Lecture
Howard Faulkner,
Professor Emeritus of English
Mabee Library
- 3:40 p.m. – 5:00 p.m. Poster Session and Reception
Mabee Library

Schedule of Oral Presentations

(HC = Henderson Learning Resources Center)

Time/Location	Presenter	Title
1:00 pm – 1:20 pm		
HC 103	Anna M. Lischke, Michael A. Reb, and Sean Van Dyke	Organizing a Self Referenced Geometry Database
HC 107	Curtis W. Leeth	Pater Patriae: Augustus and the Creation of an Augustan Aristocracy
HC 118	Clark E. Boatright	The Quest for Liberty of Conscious: William Penn and his Partnership with Algernon Sidney in the Parliamentary Elections of 1679
HC 203	Barbara Susan Warhurst	The Complexity of P.I.Ks
HC 207	Kristina N. Begole	Communication: The Knowledge Transfer Divide between the Student and the Professor
HC 208	Whitney Elise Frost	The Effects of Students Working or Involved in Extracurricular Activities on Grade Point Average, Personality, Motivation, Time Management, and Time Structuring
HC 217	Erica R. Koepsel	Prostitution is Revolution
1:25 pm – 1:45 pm		
HC 103	Matt J. Rush and Anna M. Lischke	Trends in Computer Science and Computer Engineering Education with Visualization in Python
HC 107	Kyle R. Edelman	The Plenary Power and Preemption: An Examination of Immigration Law
HC 118	Kevin D. Burton	Quaker Impact in the Age of Change: John Dickinson during the American Revolutionary Era
HC 203	Jordan R. Shefte	Perceptions of Law found in Movies
HC 207	Tracy L. Conley	Providing a Pathway to Quality Care of the Patient with Hyperemesis Gravidarum
HC 208	Ashley Marie Kurtz	Perceptions of Crime and Punishment
HC 217	Jeremiah W. Kemper	The State of Women's Health Around the World
1:50 pm – 2:10 pm		
HC 103	Michael A. Reb	The Hat Problem, A Student's Perspective
HC 107	Peyton Sloan	HIV & Bubonic Plague: A Link to the Past
HC 118	Brielle C. Stonaker	The American Revolution and Medicine: The Other Founding Fathers
HC 203	Chandler Wayne Pekarek	Workplace Managerial Study
HC 207	Staci Pershall	Harm Reduction, a Pragmatic Approach to Substance Abuse Treatment
HC 208	Claudia Saucedo	¿Por qué los estudiantes latinos no buscan una educación avanzada? (Why do Latino Students not Pursue a Higher Level of Education?)
HC 217	Alyssa J. Fiebrantz	Gender Disparity in Parliamentary Debate
2:15 pm – 2:35 pm		
HC 103	Thomas Robben	The Formation of Azamacrocycles Using a Two Step Process
HC 107	Kyle R. Edelman	The Greene Consolidated Copper Company: The Story of an American Mining Venture in Sonora Mexico
HC 118	Brenda Kostner	“And Let There Now Be Light”: Charles Wesley's Hymns as a Medium for Bringing Theology to the People
HC 203	Ashley A. Nadeau	Collective Brands, Payless ShoeSource - Using New Technology to Enhance Communication
HC 207	Miranda Rae Adkins	Facilitating Empowerment for Individuals with Disabilities through Assistive Technology
HC 208	Jenica Dawn Moore	High School Coaches' Knowledge vs. Perception of Concussions
HC 217	Milton T. Knopp	Self-Esteem and Humility in Organizational Behavior
2:40 pm – 3:00 pm		
HC 217	Milton T. Knopp, Derek Koehler, and Megan Barfield	Making an Important Life Decision (a Video Documentary)

BUILDING LEGEND

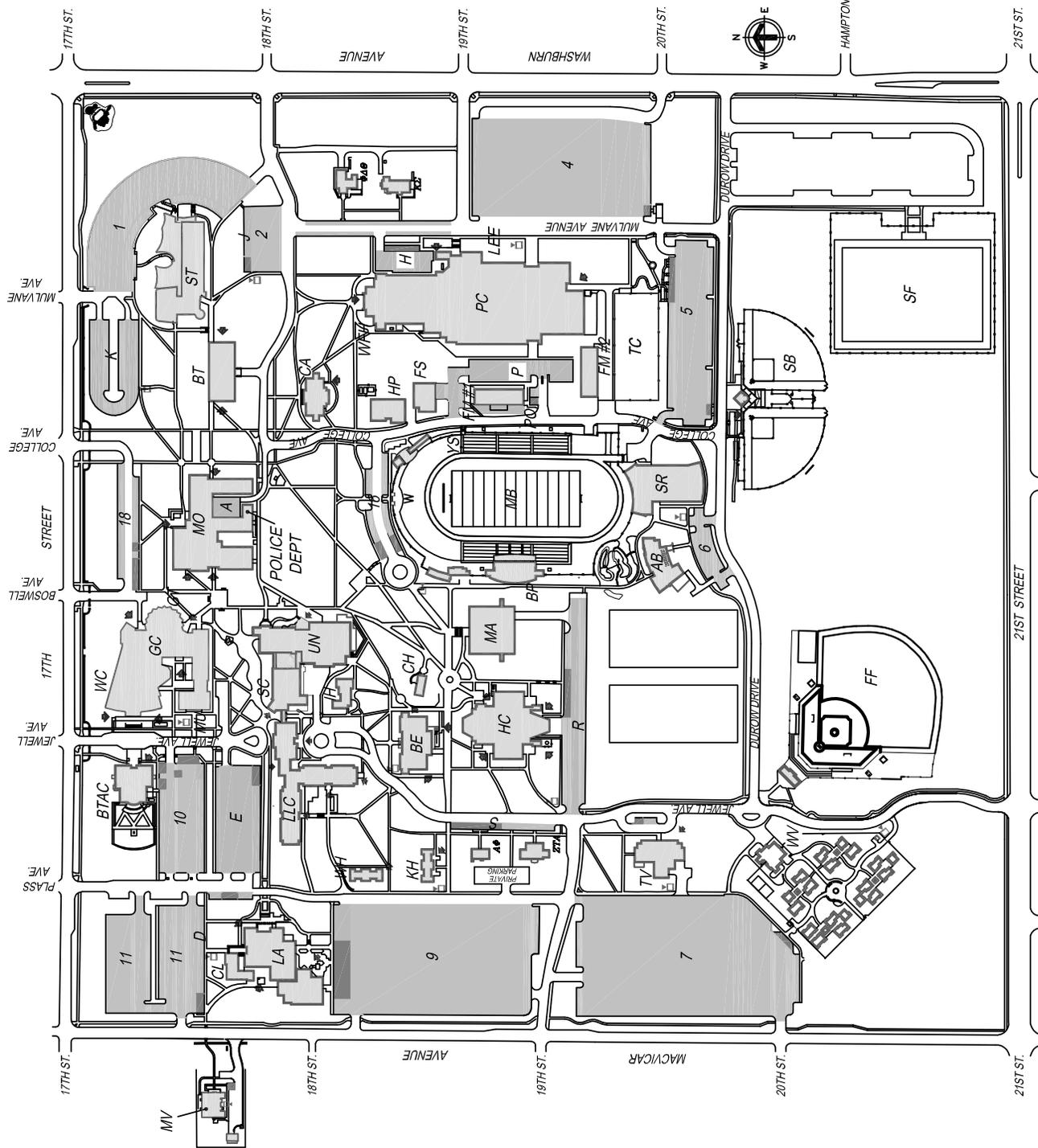
AB	ART BUILDING
BE	BENTON HALL
BP	BIANCHINO PAVILION
BT	BENNETT COMPUTER CENTER
BTC	BRADBURY THOMPSON ALUMNI CENTER
CA	CARNEGIE HALL
CH	CAROLE CHAPEL
CL	LEGAL CLINIC
FF	FALLEY FIELD
FM	FACILITIES MAINTENANCE BUILDING
FS	FACILITIES SERVICES
GC	GARVEY FINE ARTS CENTER
GT	ANDREW J & GEORGIA NEESE GRAY THEATRE
HC	HENDERSON LEARNING RESOURCES CENTER
HP	HEAT PLANT
IC	INTERNATIONAL CENTER
KH	KUEHNE HALL
LA	LAW SCHOOL
LEE	LEE ARENA
LLC	LIVING LEARNING CENTER
MA	MABEE LIBRARY
MB	MOORE BOWL
MO	MORGAN HALL
MU	MULVANE ART MUSEUM
MV	WASHBURN ENDOWMENT ASSOCIATION
PC	PETRO ALLIED HEALTH CENTER
PO	POST OFFICE
SB	SOFTBALL FIELDS
SC	STAUFFER COMMONS FOOD COURT
SF	SOCCER FIELD
SR	STUDENT RECREATION & WELLNESS CENTER
ST	STOFFER SCIENCE HALL
TC	TENNIS COURTS
TV	KTWU TELEVISION STUDIO
UN	MEMORIAL UNION
WC	WHITE CONCERT HALL
WFH	WHITING FIELD HOUSE
WH	WEST HALL
WV	WASHBURN VILLAGE
YS	YAGER STADIUM

LEGEND

-  EXISTING BUILDING
-  ACCESSIBLE PARKING
-  UNRESTRICTED PARKING
-  RESTRICTED PARKING
-  ACCESSIBLE ENTRANCE
-  LOCATION OF HELP PHONES

REVISIONS: 09/08

WASHBURN UNIVERSITY CAMPUS / PARKING MAP



Last Lecture

presented by

Howard Faulkner

Professor Emeritus of English

Howard Faulkner joined the Washburn faculty in 1972 after completing his PhD at the University of Oklahoma. He rose through the academic ranks retiring as professor and Chair of the English Department in 2010. In addition to his position at Washburn he was also the recipient of three Fulbright awards serving as Senior Fulbright Professor in Bulgaria, Macedonia, and Morocco. Although a respected scholar as the author of a variety of works including *The Rules of the Game: An Introductory English Grammar*, to countless students and colleagues Howard is recognized as a tireless and talented teacher, mentor and friend.

Mabee Library

3:00 p.m.

Past Last Lectures presented by:

Dr. William O. Wagnon 2010

Dr. Ron Ash 2009

Fine Arts Performance Session

11:00 a.m. – 12:45 p.m.

► **11:00 a.m.** **Mulvane Art Museum** **Moderator: Penelope Weiner**

Undertow

Arissa L. Utemark

Mentor: Penelope Weiner, Theatre

A scene about two students experiencing a tragedy that strikes their soccer team. The scene is the main character's apartment, where they are getting ready for the memorial service of two of their teammates and coach and trying to understand the complexities of grief.

► **11:20 a.m.** **Mulvane Art Museum** **Moderator: Penelope Weiner**

Women and College

Niel Robert Thompson

Mentor: Penelope Weiner, Theatre

It is a play about three women; Amanda, Daisy, and Rose. Amanda and Daisy are roommates. Daisy is a freshmen and Amanda is a sophomore. They are trying to decide on a movie to watch when Amanda's friend Rose comes over. Daisy reveals insecurities about her ability to handle relationships, and so Rose and Amanda decide to tell her stories from their own lives to try and put things in perspective for her. Eventually, the conversation devolves into Rose and Amanda competing for whose view on life and romance is correct, which forces Daisy into an awkward situation. Daisy is unable to choose either one because she feels that neither Rose nor Amanda really knows what they're talking about.

► **12:00 p.m.** **Mulvane Art Museum** **Moderator: Chris Kelts**

"Geistliches Wiegenlied:" Enhancing the Musical Experience Through Exploration and Analysis

Melanie M. Herd, Solmer A. Alvarez Gutierrez, and Joseph A. Fitzgerald

Mentor: Gordon McQuere, Music

In his "Geistliches Wiegenlied" for mezzo-soprano, viola, and piano, Johannes Brahms uses a sacred German folk melody as the basis for a complex work. While we cannot make assumptions about his intentions, we can explore possible relationships among musical and extra-musical elements of the piece and how they might relate to Brahms's experiences and philosophy. Such examination will enhance the musical experience of both performer and listener. In 1863, Brahms presented the first version of "Geistliches Wiegenlied" ("sacred lullaby") to his close

friend Joseph Joachim, a virtuoso violinist/violist, and his wife Amalie, a mezzo-soprano, to commemorate the birth of their first son. In 1884, he offered the couple a revised version of the piece in hopes of mending their failing marriage. Brahms's composition celebrates a joyous birth in one case and attempts to reconcile a distressing situation in another. Based on Emanuel Geibel's German translation of a Spanish Renaissance poem by Lope de Vega, the text illustrates the nativity scene. The Virgin Mary watches over the infant Jesus and implores hovering angels to silence the rustling treetops so that he may sleep. Brahms creates musical and thematic contrast via musical devices such as key, mode, meter, texture, and form. Examining possible dualities--musical and extra-musical "pairs" of contrasting ideas--may help to shed light on *Geistliches Wiegenlied*.

Oral Presentation Session

1:00 p.m. – 3:00 p.m.

WTE Denotes Washburn Transformational Experience



Session α **Moderator:** Stephen Angel

► 1:00 p.m. Henderson, Room 103

Organizing a Self Referenced Geometry Database

Anna M. Lischke, Michael A. Reb, and Sean Van Dyke

Mentor: Gaspar Porta, Mathematics & Statistics

WTE

We are putting together a self referenced database for geometries and geometry related information for online access on the HIPACE system. The challenges and delicate coordination of this process (by Anna Lischke, Michael Reb, and Sean VanDyke) is the focus of this presentation. The relative relationships of the entries as they pertain to each other is a central issue in organizing this information. Hierarchical structures and interconnections between entries--as well as the organization of the content of each entry--are at the heart of the success of our database. This talk will concentrate on describing these aspects of our HIPACE implementation.

► 1:25 p.m. Henderson, Room 103

Trends in Computer Science and Computer Engineering Education with Visualization in Python

Matt J. Rush and Anna M. Lischke

Mentors: Donna LaLonde, Mathematics & Statistics

and Cecil Schmidt, Computer Information Sciences

We will be discussing our experience taking CM 299: Visualization with Python as well as discussing trends of the last 20 years in computer programming and computer engineering. We will use what we learned in this introductory programming class to visualize these trends. We will also discuss some of the pros and cons of using an object programming language versus other programming languages.

► 1:50 p.m. Henderson, Room 103

The Hat Problem, A Student's Perspective

Michael A. Reb

Mentor: Allan Riveland, Mathematics & Statistics

The Hat Problem is a classic logic problem which involves a team of n players, each wearing either a red or blue hat. The team members are to devise a strategy for each member guessing the color of their own hat. Players can see the other $n-1$ hats but not their own. The strategy is deemed successful if at least one player guesses their own hat-color correctly and none guess the color incorrectly. A team member is allowed to pass. A goal of the team is to devise a strategy that will be optimally successful, independent of the hat colors of each of the n players. The origin of the problem is attributed to Dr. Todd Ebert, who introduced it in his 1998 Ph.D. thesis. There are several different versions of the problem currently discussed in the literature. "Solutions" to the problem generally involve Hamming codes, an important binary structure introduced in code theory. The presenter will discuss a particular version of the hat problem, and develop the mathematics needed to support the usual 7-player strategy for the problem without introducing Hamming codes. This 7-player mathematical development will then be generalized to accommodate n players.

► 2:15 p.m. Henderson, Room 103

The Formation of Azamacrocycles Using a Two Step Process

Thomas Robben

Mentor: haun Schmid, chemistry

WTE

The focus of this research was to synthesize amine functionalities for a polycyclic cage system. The synthesis of 1,6,9-tris(*p*-toluenesulfonyl)-triazacycloundec-3-ene and derivatives were synthesized by a ring closing metathesis (RCM) reaction using a ruthenium catalyst in CH_2Cl_2 . The ring closing metathesis was studied using reaction conditions conducted under sonication, as well as by stir bath at reflux. It was found that yields of the reactions using either method were similar, but those conducted by sonication generally had lower reaction times. Solution phase ruthenium catalysts are known to contaminate reaction products. Therefore a resin supported ruthenium catalyst was used in the reaction on the model system. Good yields were obtained, but it was found that the catalyst degraded and contaminated the reaction products. The removal of the protecting group was attempted by a reaction with magnesium in methanol and a lead sodium alloy. Removal of the protecting group failed using these reagents.



Session β

Moderator: Tony Silvestri

► **1:00 p.m. Henderson, Room 107**

Pater Patriae: Augustus and the Creation of an Augustan Aristocracy

Curtis W. Leeth

Mentor: Tony Silvestri, History

The success of Augustus' reign in establishing a Roman Empire, and the subsequent enduring Pax Romana, largely depended on the creation of a special aristocratic and administrative class across the breadth of the Empire. This new Augustan aristocracy was an amalgamation of three distinct groups: the Julio-Claudian Imperial family itself, personal allies within the equites social class and Roman military elite settled across the Empire. Analysis of primary and secondary literature reveals the successful methods that Augustus employed to bind the new ruling class to his dynasty and its imperium through propaganda in literature and coinage, military settlement, Senatorial, urbis Roma and Empire-wide administrative reform and appointing reliable family allies like M. Agrippa.

► **1:25 p.m. Henderson, Room 107**

The Plenary Power and Preemption: An Examination of Immigration Law

Kyle R. Edelman

Mentor: Steven Cann, Political Science - Geography

In recent years, undocumented immigrants have entered the United States in record amounts, with the total today sitting at approximately twelve million. In response, many states have sought to fill a perceived gap in federal immigration law. In 2007, state legislatures passed 240 immigration-related bills, many of them concerned primarily with employment. The two primary cases that will come before the Supreme Court center on laws out of the State of Arizona. The federal government, labor organizations, and civil rights groups have challenged the Arizona laws, seeking to see the laws invalidated as conflicting with the federal government's plenary power over immigration and naturalization. Arizona argues that the laws are necessary to stop the tide of illegal immigrants, an issue on which the federal government has failed to take action. This study examines the judicial precedent of the Plenary Power and Federal Preemption in the field of Immigration, and argues that both of Arizona's Immigration Laws will be invalidated by the Supreme Court, should they come before it.

► **1:50 p.m. Henderson, Room 107**

HIV & Bubonic Plague: A Link to the Past

Peyton Sloan

Mentor: Tony Silvestri, History

The goal of this paper is to link the 17th century bubonic plague survivors to those who may be immune to HIV today via the research done in the small village of Eyam in England. It has been found that the descendents of the plague survivors in this village have a gene mutation that can make them immune to HIV.

► **2:15 p.m. Henderson, Room 107**

The Greene Consolidated Copper Company: The Story of an American Mining Venture in Sonora Mexico

Kyle R. Edelman

Mentor: Kim Morse, History

In 1898, ‘Colonel’ William C. Greene wandered across the Arizona-Mexico border and stumbled upon the abandoned mining town of Cananea. There, Greene came across what he believed was a “veritable mountain of copper.” In that year, Greene began efforts that would transform Cananea into a mining-boom town in little less than a decade. Greene and his Consolidated Copper Company would come to rival even the Guggenheim mines elsewhere in northern Mexico. The Greene Consolidated Copper Company provides a valuable look at American Investment in the state of Sonora at the turn of the twentieth century as companies attempted to find success on both sides of the border. Such companies entered into a cross border relationship that came to have profound effects on both nations.



Session γ

Moderator: Alan Bearman

► **1:00 p.m. Henderson, Room 118**

The Quest for Liberty of Conscience: William Penn and his Partnership with Algernon Sidney in the Parliamentary Elections of 1679

Clark E. Boatright

Mentor: Alan Bearman, History

My research examines William Penn’s support of Algernon Sidney in England’s Parliamentary elections of 1679. Their partnership is perplexing at first glance. Penn and Sidney disagreed on many political principles, such as the best form of government and the right of the people to rebel. However, their shared theology of liberty of conscience was of greatest concern to William Penn. Penn believed Sidney could help deliver religious toleration in England, causing the Quaker to put aside other political issues to support the Whigs and the radical republican, Algernon Sidney.

► **1:25 p.m. Henderson, Room 118**

Quaker Impact in the Age of Change: John Dickinson during the American Revolutionary Era

Kevin D. Burton

Mentor: Alan Bearman, History

The development of America during the Revolutionary Era required influential leaders who could lead America, such as John Dickinson. Dickinson helped spark the idea of separation from Britain in his *Letters from a Farmer* in Pennsylvania and was influential in the creation of the Olive Branch Petition. Furthermore, he served in the second Continental Congress, in the Revolutionary War and as a delegate at the Constitutional Convention. Besides Dickinson's influential political role, he also held Quaker beliefs. My paper, *Quaker Impact in the Age of Revolution: John Dickinson during the American Revolutionary Era*, examines how Dickinson's Quaker heritage and beliefs influenced his political life during the Revolutionary Era.

► **1:50 p.m. Henderson, Room 118**

The American Revolution and Medicine: The Other Founding Fathers

Brielle C. Stonaker

Mentor: Kerry Wynn, History

This work is a historiography over medicine during the American Revolutionary War. The war not only succeeded in establishing America as a country, but enabled the establishment of a medical institutions and professional educational systems. The historiography also examines the historical gaps scholars have failed to highlight on the subject, and why it is necessary to study the gaps in order to fully understand America's medical history. This historiography is also a preemptive to my primary source research on the possible occurrence of anti-sepsis by Dr. Charles Gilman, and the controversy that surrounds the event.

► **2:15 p.m. Henderson, Room 118**

"And Let There Now Be Light": Charles Wesley's Hymns as a Medium for Bringing Theology to the People

Brenda Kostner

Mentor: Alan Bearman and Tom Prash, History

For centuries the dialogue between historians focused on John Wesley, the charismatic leader of the Methodist movement whose countless sermons and theological treatises written in the mid-eighteenth century solidly defined the movement in the minds of biographers and historians. His younger brother Charles Wesley was left to be remembered as only a hymnwriter. However, his hymns were more than just simple church music. Charles wrote poems which expressed his relationship with God, and which evidenced his developing theology. The subsequent hymns were more accessible to the general public than doctrinal sermons and treatises. Charles's hymns

were a significant part of what hooked people into the movement in its early beginnings, and his belief in the Trinity figured significantly into the poetry he wrote, thus making an examination of that specific theology a way of seeing how hymns were a medium of translating theology to the people. Previous dismissal by historians of the hymns in the development of Methodist theology thus ignored the influence that Charles had on early Methodism because his hymns were theology in song.



Session 8

Moderator: Maria Reicheva-Stover

► 1:00 p.m. Henderson, Room 203

The Complexity of P.I.Ks

Barbara Susan Warhurst

Mentor: Sarah Ubel, Communication

WTE

The purpose of this study is to determine if the revised Kansas P.I.K is simpler to comprehend compared to the previous P.I.K used prior to 2010 based on the S.M.O.G calculator, the C.L.E.A.R calculator, the A.F.I calculator and the G.F.I. calculator calculations to determine if the revised P.I.Ks are simple enough to be understood based on an average literacy rate. The results are expected to determine if the revised P.I.Ks have indeed made it more possible for potential jurors to comprehend jury instructions. The data provides the evidence that the revised P.I.Ks are very similar to the original P.I.Ks however the original P.I.Ks are simpler to understand.

► 1:25 p.m. Henderson, Room 203

Perceptions of Law found in Movies

Jordan R. Shefte

Mentor: Tracy Routsong, Communication

WTE

This study seeks to investigate the effects of movies on viewers' perceptions. The research will be conducted on movie scenes that contain aspects of law within them, and then link these scenes to the perceptions of the audience. To do this, the top ten movies for a given year will be analyzed, and then themes will be created from the scenes that are viewed. These movies will not be law-based movies, but rather the movies that ranked in the top ten for the year. The study will be done by viewing the top ten movies and analyzing their transcripts looking for scenes that have aspects of law in them. After the scenes have been viewed, a content analysis will be conducted. From this content analysis, I will be able to conclude on what type of perceptions the blockbuster hits could be forming on the public opinion of law. Based on what they see in the movie, people could walk away with either a positive or negative opinion of law.

► **1:50 p.m. Henderson, Room 203**

Workplace Managerial Study

Chandler Wayne Pekarek

Mentor: Sarah Ubel, Communication

WTE

This study was conducted to test whether or not the sexual orientation of a superior within an organization has an effect on the amount of credibility that a subordinate associates with that superior.

► **2:15 p.m. Henderson, Room 203**

Collective Brands, Payless ShoeSource - Using New Technology to Enhance Communication

Ashley A. Nadeau

Mentor: Maria Raicheva-Stover, Mass Media

WTE

This past summer I interned at Collective Brands, the umbrella company that owns Payless ShoeSource, along with several other footwear and apparel brands such as Sperry Topsider, Saucony, Keds and Airwalk. This internship led me to the concept of creating a podcast as an additional communication vehicle for the company. From this idea I created a strategic communication plan, detailing the specifics of the podcast. The Washburn Transformational Experience gave me the opportunity to actually develop and implement a podcast for Collective Brands to use to communicate with associates. This presentation will elaborate on the need for, and effects of, incorporating new media techniques in corporate communication.



Session E

Moderator: Nan Palmer

► **1:00 p.m. Henderson, Room 207**

Communication: The Knowledge Transfer Divide between the Student and the Professor

Kristina N. Begole

Mentor: Marilyn Masterson, School of Nursing

Current literature states that communication is essential to the learning process. Students tend to have a more fulfilling educational experience when they have had a good working relationship with their instructor. These relationships are developed through communication and understanding of expectations. An apparent lack of communication between students and professors has become a problem resulting in student dissatisfaction, impaired learning, poor instructor/student relationships, and added instructor stress. Research shows that good communication through out the learning processes enhances learning and increases success rates and completion of the degree program. It has been proven that guidelines or parameters that set

expectations for both the student, as well as the teacher, increase proper communication. These guidelines consist of topics such as the timely return of correspondences and graded papers, notice of syllabus changes, and availability of class materials. By following these general rules, the communication barrier between student and teacher can be greatly reduced. Unfortunately, there is no definite answer to completely erase the divide, only compromises which can help both sides communicate more effectively.

► **1:25 p.m. Henderson, Room 207**

Providing a Pathway to Quality Care of the Patient with Hyperemesis Gravidarum

Tracy L. Conley

Mentor: Lara Price, School of Nursing

Currently, in clinical practice there exists a wide variation on the medical treatment and care of women suffering with Hyperemesis Gravidarum (HG). Many factors contribute to these disparities in care including: lack of education about HG, out of date information from medical and nursing literature, and many personal beliefs and prejudices held by both physicians and nurses about pregnant women and acceptable treatments for HG. This project provides a standard of nursing care for the HG patient in the hospital by creating a clinical pathway to be used in planning and implementation of interventions by the staff upon admission through discharge and will incorporate much of the suggested protocol of the Hyperemesis Education and Research Foundation. As HG presents differently in each patient, this pathway creates an individualized approach to providing care based on the unique symptoms of each woman. This approach should improve the quality of care received and increase patient satisfaction while providing the best symptom management and avoiding dangerous complications associated with undertreatment.

► **1:50 p.m. Henderson, Room 207**

Harm Reduction, a Pragmatic Approach to Substance Abuse Treatment

Staci Pershall

Mentors: Bassima Schbley and Nan Palmer, Social Work

Research conducted by Gruer, Cameron, & Elliot, 1993; Reuter & Pollack, 2006; Stancliff, Agins, Rich, & Burris, 2003, shows that harm reduction minimizes the risks associated with drug use to individuals and society. A growing number of international countries have adopted harm reduction policies to address the effects of drug use. Currently, the U.S. government does not endorse harm reduction in its national drug policy, despite its use in several states, including California, Massachusetts, and Kansas. This research project will explore the history of harm reduction in the U.S., ethical principles associated with the use of harm reduction, and the implications of harm reduction practices for social work.

► 2:15 p.m. Henderson, Room 207

Facilitating Empowerment for Individuals with Disabilities through Assistive Technology

Miranda Rae Adkins

Mentor: Nan Palmer, Social Work

Daily functions are a part of our everyday lives. Our daily routines are no nonsense, consumer driven and fast paced. What do you suppose would happen to the fast paced environment if we were not able to walk, speak, see or all of the above? I would imagine our communication would be lost in the balance. Hopefully we would be fortunate enough to have a loved one or caregiver take care of us. How would we let that person know that we wanted to eat, to sleep, to go outside and get some fresh air. Assisted technology is helping millions of people with disabilities both physically, and intellectually everyday. Devices that adapt to wheelchairs, to switches, and to touchscreen computers can enable those with disabilities to have a voice all their own, some for the first time in their lives.



Session ζ

Moderator: Erin Chamberlain

► 1:00 p.m. Henderson, Room 208

The Effects of Students Working or Involved in Extracurricular Activities on Grade Point Average, Personality, Motivation, Time Management, and Time Structuring

Whitney Elise Frost

Mentor: Joanne Altman, Psychology

WTE

This experiment investigated the effect of working in a job or at extracurricular activities on students' time management, time structuring, motivation, personality, and GPA. The hypothesis was that students who work part time (versus full time) would be better at time management and time structuring, and have higher GPAs than those who had more flexible time in their day or work full time. We also expected that people who are more conscientious and motivated would be better time managers. The data will be discussed in terms of the impact of working while going to school.

► 1:25 p.m. Henderson, Room 208

Perceptions of Crime and Punishment

Ashley Marie Kurtz

Mentor: Gary Forbach, Psychology

Research on perceptions of crime and punishment has primarily focused on the importance of racial and social profiling of the criminals. The increase in national crime rate and criminal

justice related television shows has provided a new level in public awareness, but what public attitudes are embraced remains to be determined. Previous studies suggested that citizens are more likely to support harsher punishments for African American and minority criminals, subsequent offenders, and offenders committing street crimes. The current study examined public perceptions of punishment based on personal background history about the criminal and their family. This research extended prior studies by also considering the influence of the classification of the crime committed, the religious affiliation of the criminal, and the gender of the criminal. Implications for future research and the impact of this information on future criminal justice processes and policies are further discussed.

► **1:50 p.m. Henderson, Room 208**

*¿Por qué los estudiantes latinos no buscan una educación avanzada? (Why do Latino Students do not Pursue a Higher Level of Education?)**

Claudia Saucedo

Mentor: Miguel Gonzalez-Abellas, Modern Languages

WTE

**This presentation will be in Spanish.*

Latinos are now the largest minority group and the largest amongst individuals under the age of 18 in the country as well as in Kansas. The focus of my study was Latino students from Kansas. Recent reports indicate that in contrast with demographic data, participation of Latinos continues to be low in all levels of education in the state. Some factors identified in my research include racism, poverty, lack of educational leadership, inadequate early childhood literacy development, impersonal education environments, failure to establish a cultural context, low teacher expectations, insufficient parental support, negative peer pressure, instruction not aligned with student needs etc.

► **2:15 p.m. Henderson, Room 208**

High School Coaches' Knowledge vs. Perception of Concussions

Jenica Dawn Moore

Mentor: John Burns, Kinesiology

WTE

Currently, a very hot topic in both the athletic training and education fields is high school students suffering from concussions, as well as if and when they should return to play. Having grown up around coaches and seeing many concussions in young athletes in the past led me to wonder how much high school coaches think they know about concussions as brain injuries versus their actual knowledge of the condition. I developed a short survey with help from the Center for Disease Control's "Heads Up" material (distributed to every high school coach in the United States) and asked questions about what the coaches thought they knew about concussions and compared those answers to a graded quiz on the coaches' actual knowledge of concussions. I distributed the survey at random to coaches at the Kansas State High School Activities Association's coaching school in August 2010 and was able to collect fifty completed surveys to analyze. Overall, the coaches had a relatively good knowledge of the basics of concussions. It

was very interesting to compare the coaches' perceptions of their knowledge to their actual knowledge based on quiz scores. Some perceptions correlated well with the scores on the knowledge portion of the survey while others did not seem to correlate much at all.



Session η

Moderator: Sharla Blank

► **1:00 p.m. Henderson, Room 217**

Prostitution is Revolution...

Erica R. Koepsel

Mentor: Sharla Blank, Sociology - Anthropology

The United States limits the movement of prostitutes strictly on a moral basis of the individuals living in this country. Many other countries have legalized prostitution in some form making sex work a legitimate trade. The U.S., however, still maintains a criminalization that focuses more on the prostitutes than the johns buying their services. It is time that the United States legalize prostitution and create a system that would reduce the violence against prostitutes, reduce the health risks for sex workers and their clients, change the stigma associated with sex work, increase the economic advantages of the sex industry, and empower women from all backgrounds.

► **1:25 p.m. Henderson, Room 217**

The State of Women's Health Around the World

Jeremiah W. Kemper

Mentor: David Bainum, Computer Information Sciences

WTE

With the rise of the internet comes a great opportunity to gain access to rarely seen, often wondered about data. Rapid development techniques and data mining processes were developed to bring multiple sources together in a visualizing application highlighting where women's health is today both here and around the world.

► **1:50 p.m. Henderson, Room 217**

Gender Disparity in Parliamentary Debate

Alyssa J. Fiebrantz

Mentor: Steve Doubledee, Communication

NPDA Parliamentary debate currently has a lack of female participation in the activity. Out of the top 10 teams (20 people) there are only two women. This year at the NPTE national tournament there were only two women in the top ten speakers with no woman higher than 5th

speaker. My paper seeks to evaluate the types of communication the top 4 female debaters in the activity use, whether that is masculine or feminine communication as a means to not just adapt but be successful in a masculine dominated activity. The paper is accompanied by a video. The video is a collection of narratives from different people of how they view gender disparity in parliamentary debate. The video is a lens to view the paper through for people who are not familiar with the activity or why it may be so important for individuals.

► **2:15 p.m. Henderson, Room 217**

Self-Esteem and Humility in Organizational Behavior

Milton T. Knopp

Mentor: Janice Schrum, School of Business

The Benedictine Abbey, Our Lady of the Annunciation of Clear Creek, in Oklahoma is one on the very few monasteries built in the U.S. in the last few decades. The community was started by a few members who came from the French Abbey of Fontgombault. Why would a traditional religious community be so successful in its growth when it would seem that monasticism has outlived its usefulness? This presentation will start by giving an organizational overview of the Benedictine order in general and then focus on the Guéranger Restoration in particular. The unique values, artifacts, shared assumptions, rights and rituals of this new and thriving religious community will be covered as well in the context of principles put forth by Dr. Schrum as well as those in Robert Kreitner's and Angelo Kinicki's book, *Organizational Behavior*. In conclusion the concepts of humility and self-esteem will be evaluated and observed to see their relationship to each other in addition to their role in the success of this Abbey.

► **2:40 p.m. Henderson, Room 217**

Making an Important Life Decision (a Video Documentary)

Milton T. Knopp, Derek Koehler, and Megan Barfield

Mentor: Jae Yoon Park, Mass Media

A couple resolved to have an abortion. In the abortion clinic parking lot, they change their minds. The money intended to buy the abortion is used for an engagement ring instead. This documentary explores the life of this woman more than a decade later. We see if she believes it was the right choice or not and why.

Poster Session

3:40 p.m. - 5:00 p.m.

WTE Denotes Washburn Transformational Experience

1

Adipocere Removal from Human Skeletal Remains

Christa M. Obermeyer

Mentor: Sue Salem, Chemistry

WTE

Adipocere is formed when water reacts with the fatty acids of the body to form glycerol and soap. It has a wax-like appearance. Also known as “grave wax,” adipocere is generally hard to remove, usually taking a few days to soak and hand clean the bone underneath. This experiment explores various methods of removal. Steaming the bone, treating with hydrogen peroxide and soaking the bone in Aqueous Degreaser and Tergazyme by Alconox were the attempted methods. It was found that soaking the bone in warm water with Alconox Aqueous Degreaser was the best adipocere removal method. This poster explores the methods used as well as the results.

2

Utilizing Lidocaine: Increasing Awareness to Decrease the Pain Experience

Nicole M. Sauer

Mentor: Jane Robinson, School of Nursing

WTE

This project was established to increase awareness among nursing students about a technique they can use to decrease the pain their clients experience with insertion of peripheral intravenous catheters. After collaborating with a registered nurse IV therapist to discuss information about lidocaine, proper utilization and how patients benefit from its use, an instructional video was developed. While the Infusion Nurse Society recommends using the least invasive methods first (i.e. topical lidocaine cream), I have chosen to develop a video demonstrating the use of injected buffered lidocaine because the technique required is more advanced than applying a cream to the skin. Level III nursing students enrolled in NU473 Nursing III are viewing the video and completing a short survey regarding their thoughts on the video; results are currently pending. Initially this project will impact the students following me in the nursing program by increasing their knowledge and skill base. On a grander scale, it will impact the patients these future nurses care for by decreasing the pain they experience with peripheral IV insertion.

3

Improving Communication: A Standardized End of Shift Reporting System

Carey Jordan

Mentor: Shirley Waugh, School of Nursing

WTE

The purpose of my nursing school honors project is to improve communication between registered nurses (RNs) at shift change in an acute care facilities Emergency Department (ED). I

developed a communication tool and distributed it to all RNs working in the ED. They were asked to utilize this tool while giving and receiving report at shift change. I later distributed a survey to all RNs (with the exception of supervisory staff) to evaluate the tool. The goal is to improve communication by providing consistency in end of shift reporting between nurses. Utilizing a standardized communication tool can aide in relaying vital patient information in a hope to reduce errors and improve patient care.

4

Reference Guide: IV Medications Incompatibilities and Push Times for Nursing Students

Cari Meats

Mentor: Lori Edwards, School of Nursing

WTE

I have developed a reference guide for nursing students that contains information regarding IV medication incompatibilities and push times. I have supplied this reference guide to the students in two 3rd semester nursing clinicals - a total of 18 nursing students. I have developed and approved a survey to gather information regarding the usefulness of this reference guide in the clinical setting. This survey will be passed out to the students and the information will be returned to me. I would then like to present the information I have gathered to other students and faculty completing my honors project for the school of nursing.

5

Social Influence on Eating Behavior and Using Serving Size as a Mitigating Factor

Joseph M. Currin

Mentor: Joanne Altman, Psychology

WTE

There is a lot of attention today given to eating behaviors and patterns that lead to overeating. One factor that leads to overeating is eating as a social function. This study investigated whether there was an effect of the number of people eating together on the amount consumed by each person, and if the effect can be mitigated by making people aware of proper portion size before they eat. The expected results were that female triads would eat more individually than dyads, or those eating alone. In addition, we hypothesized that the participants made aware of proper portion size before their meals would eat less than those that were not made aware of proper portion size. Women (N = 99) received a pre-weighed meal of pasta that weighed 710.4 grams. Before the meal, half of the participants were informed of the proper serving size via a questionnaire. After the meal concluded, the amount not eaten per person was weighed to determine the amount consumed and the duration of the meal was recorded. The results partially confirm the hypotheses. Individuals in dyads did eat more than those eating alone. However, individuals in triads did not eat more than individuals in dyads; they ate less. Furthermore, serving size information had no effect on the amount the individuals ate in any group.

6

The Effects of Personality on Roommate Satisfaction

Sarah Rachel Patterson

Mentor: David Provorse, Psychology

WTE

Personality is made up of the unique characteristics that distinguish one person from the other, shaping the way we see ourselves and the world around us. Studies suggest that satisfaction is due complementarity based on the Interpersonal Circumplex model (Horowitz, 2004; Kiesler, 1996; Markey, Funder, & Ozer, 2003; Orford, 1986; Sadler & Woody, 2003; Strong et al., 1988; Tiedens & Fragale, 2003; Tracey, 2004.) According to Gosling, the interaction of these two dimensions creates the ultimate recipe for relationship satisfaction. Therefore, this study will investigate the effects of personality on roommate satisfaction, applying the interpersonal circumplex model to non-romantic relationships. I believe individuals similar in nurturance but opposite in dominance will have higher levels of satisfaction than those similar in nurturance and similar in dominance, opposite in nurturance and similar in dominance, similar in nurturance and opposite in dominance, and opposite in nurturance and opposite in dominance. In this study, participants were asked to fill out the Interpersonal Adjective Scale, followed by the Relationship Rating Form. Participants were also asked to fill out demographic information indicating gender, age, and ethnic background. These tasks took no more than 30 minutes. Upon completion participants were debriefed, thanked, and dismissed.

7

Purification and Interactions of Herpes Simplex Virus Type 1 UL34 Protein

Jayne S. Barnes

Mentor: Susan Bjerke, Biology

WTE

HSV-1 consists of a large double-stranded, linear DNA genome within a capsid that is enclosed in an envelope. The UL-34 gene of the herpes simplex virus 1 (HSV-1) is highly conserved in the herpesvirus family. Upon expression, UL-34 is capable of assisting the virus in escaping the nucleus thus promoting virulence of HSV-1. A GST tag is used to purify UL-34 from an *E. coli* bacterial culture. Upon purification, UL-34 is added to mammalian cell lysates to determine if UL-34 interacts with other mammalian cell proteins. Pull-down assays are used to facilitate possible interactions and any interactions are then viewed on SDS-PAGE gels. Modifications in the PBS buffer, Glutathione beads, mammalian cell lysates, temperature, and incubation did not promote protein interactions. Increasing the amount of UL-34 in the pull-down assay improved binding of UL-34 to the Glutathione beads as indicated by the concentration of UL-34 returned in the gel. No other proteins were pulled-down with the UL-34. Future studies include further modifications of the pull-down procedure to promote protein interactions and the pull-down of proteins other than UL-34 as well as the identification of these proteins.

8

Sex Education and Sexuality

Erica R. Koepsel

Mentor: Jenna Glover, Psychology

WTE

The sexuality of adolescents is constantly changing, with the risks continuing to change as well. According to the Center for Disease Control (2009) almost half of all high school students are sexually active. With statistics showing four in ten sexually active girls become pregnant before 20 and one in four sexually active teens will contract an STD every year. For this reason, it is important to ensure we have properly addressed issues surrounding safe sex and sexuality so adolescents are prepared. When questioned students thought important topics to cover included STDs, birth control methods, safety, puberty, reproduction, sexual assault, and decision making (Beyers, et. al., 2003). Parents also found it important for adolescents to receive education on the topics (Asmussen, 1992) and several studies emphasized the importance of parents involvement in that education (Rosenthal & Feldman, 1999). We do not know how these forms of sex education benefit or harm the adolescents later in life. This study will investigate the effects of different types of sex education and the development of individuals. The independent variable being measured is the type of sex education received. The dependent variables include sexual activity, comfort with sexual topics, and sexual knowledge. I believe those who received a comprehensive education in high school will be more knowledgeable, less sexually active, and more comfortable with sexual topics.

9

The Effect of Nutrition Labels on Sales in the Food Court Setting

Katelyn M. Martinek

Mentor: Joanne Altman, Psychology

WTE

Today in grocery stores you can see all nutrition content on the labels of everything you buy in a grocery store, but that is not the case for restaurants and cafeteria settings (Kolodinsky et al. 2008). A research study was conducted and determined that there is a relationship between lifestyle and campus eating behavior (Jackson, Berry, and Kennedy. 2008). A research study conducted by Kolodinsky et al. in 2008 measured sales in the food court setting while showing nutrition labels, but only measured a difference in average energy content. The purpose of this study was to determine if posting nutritional labels in a college cafeteria would change meal choice to healthier selections. As a result of posted nutrition signs in the food court sales for some unhealthy entrees as well as snacks and desserts decreased and sales for sandwiches (healthy) increased.

10

Chromosome Content, Aberrations and Coleoptile Length in Karyotypically Unstable Populations of Perennial Wheat Amphiploids

Alicia Anne Burris

Mentor: Matthew Arterburn, Biology

Perennial wheat lines are generated by crossing annual hexaploid bread wheat (*Triticum aestivum*, $2n = 6x = 42$, AABBDD) and perennial wheatgrass species (*Thinopyrum elongatum*, $2n = 14$, EE). The chromosome contents of these crosses were doubled using colchicine to generate amphiploids such as AgCS ($2n = 8x = 56$, AABBDDDEE). These perennial wheat lines are used to reduce soil erosion; however, they have depressed yield qualities. We examined the F6 generation of a cross between AgCS and winter wheat variety Madsen. Karyotyping and genomic in situ hybridization (GISH) was used to determine the number of perennial-derived and annually-derived chromosomes of these lines. Of 26 lines karyotyped, 11.5% of F6 lines possessed 56 chromosomes, 26.9% had 54 chromosomes, 38.5% had 52 chromosomes and 11.5% had 43 or fewer chromosomes. The number of E genome chromosomes present varied from 8 to 14. Either one or two telosomic chromosomes were detected in 58.3% of plants. Of plants analyzed by GISH, 58.3% exhibited translocated chromosome arms between wheat and wheatgrass chromosomes. We measured coleoptiles of 76 F6 amphiploids and observed a standard deviation of 20.9 mm, compared with 40 plants from control lines AgCS and Madsen which had a standard deviation of 15.1 mm. This may indicate that the flux in chromosome number contributes to a larger deviation in coleoptile length and that chromosomes of *Th. elongatum* affect seedling development rates. We will explore these dynamics in future research.

11

Effect of Energy Drinks on Heart Rate Variability and Metabolic Parameters in College Students

Katherine Larson

Mentor: Paul Wagner, Biology

Energy drinks and the rise in obesity levels have gained much press in recent months. These drinks have become a staple in the diets of many college students. Since these drinks contain high concentrations of the amino acid taurine, sugar and caffeine, we were interested in how these drinks altered both heart rate variability (a measure of autonomic nervous system activity) and metabolism over an extended period of time. Twenty college students were recruited for a weeklong study. Each subject's electrocardiogram and resting metabolic rate were measured before and after ingestion of 16 oz of water on the first day. After two days, this process was repeated daily for 5 days, replacing the water with a Rock Star energy drink. We found that the energy drink altered heart variability not only the hour after consuming the drink but sustained this change over the 5-day period. Resting metabolic rate was increased by an average of 17.9% acutely and this increase was maintained over the week at a level of 6.14% prior to ingestion. In addition, self-reported symptoms of altered behavior were quite varied from nothing at all to insomnia. These data support the idea that energy drinks certainly have the ability to act as a stimulant and show that this stimulant effect may have lasting effects.

12

Parenting/Punishment Effects View of Authority

Porscha J. Selley

Mentor: Jenna Glover, Psychology

WTE

The purpose of this study is to gain knowledge about parental authority with use of punishment and how it affects views of authority. Participants will sign up providing an e-mail address that the researcher will use to send the link for an online survey. The survey will be given done through survey monkey. The participants will first receive an online consent form. After consenting they will complete a basic demographic section including: age, gender, and ethnicity, then will receive questionnaires about their primary caretakers discipline style while growing up and on respect to authority. Participation is estimated to take 30 minutes.

13

Phenotypic Characterization of Magnesium Transporter Mutations in Bacillus subtilis

Sarah D. Wuerfele

Mentor: Andrew Herbig, Biology

Magnesium (Mg) is the most abundant divalent cation in living cells and plays structural and biochemical roles in many cell processes. Although the importance of Mg as a cellular nutrient has been well established, the process by which organisms obtain Mg from their environment is still unclear. We study the Gram-positive bacterium *Bacillus subtilis* as a model system to understand Mg uptake and utilization in bacteria. The *B. subtilis* genome encodes for two CorA transporter homologs (YqxL and YjfQ) and one MgtE transporter homolog. In this study, we describe results of experiments designed to characterize the biological roles of these putative transporters in *B. subtilis* Mg homeostasis. In low Mg conditions, Δ mgtE exhibits a growth defect, as does a strain in which both both CorA homologs are deleted. A triple mutant (*mgtE yjfQ yqxL*) also exhibits a significant growth defect in low Mg compared to isogenic wild-type. *B. subtilis* strains with transporter mutations occurring singly or in combination display decreased sporulation efficiencies. A Δ yjfQ mutant demonstrates an increased sensitivity to Zn^{2+} and an increased resistance to Ni^{2+} . In contrast, Δ mgtE exhibits increased sensitivity to Ni^{2+} , a slight increase in Mn^{2+} resistance, and significantly increased sensitivity to hydrogen peroxide.

14

How Locus of Control and Cultural Values Affect Study Strategies

Elizabeth A. Rausch

Mentor: Joanne Altman, Psychology

WTE

Students with poor study skills generally do not realize that they could improve test scores just by utilizing different study techniques. Most students do not realize what good and bad study techniques are. Furthermore, research shows that locus of control can play a role in what study techniques a student chooses. Research also shows that different cultures have a different generalized locus of control based on an individualistic or collectivistic society, and these differences can affect the study techniques students from particular cultures choose. This

presentation will review the literature on the use of good or poor study skills, and what effect locus of control and culture have on the development of these study strategies

15

Cognitive Functioning in Non-Human Animals

Tori Tipton

Mentor: Joanne Altman, Psychology

WTE

A common question in the animal cognition literature is what advanced cognitive tasks, which humans demonstrate, are also evident in other animals. Other species demonstrate tool use, novel problem solving, self-recognition, numerology and language. One task that doesn't even develop in humans until young adulthood is executive function (decision making). Elements of executive function include matching-to-sample and set shifting (changing what match was cued). This review will introduce a plan to test executive function in an Umbrella Cockatoo (*Cacatua alba*). We chose the cockatoo as a subject because cockatoos are easily trainable with evidence of behavioral complexity.

16

The Effects of Education on Implicit Attitudes of Ideal Thinness and Self-Esteem

Bailea D. Ochs

Mentor: Joanne Altman, Psychology

WTE

In today's Western society the ideal women's figure is thin. The media has been criticized for creating this unrealistic body image for women. Many studies have been conducted to educate women on the harmful consequences of obtaining such an unrealistic body image in the hope of creating more realistic expectations. However, these studies measured explicit (external) changes in self esteem and body image, but did not measure implicit (internal) perceptions towards ideal thinness. In other words, education might teach us what the right things to say are, but may not change our desire for unrealistic thinness. Thus, the purpose of the current study is to test whether or not implicit attitudes towards thin idealization are changed through more personalized education. A traditional training approach was compared to the personalized approach and a control presentation. The results showed that we were not able to change implicit ideal thinness.

17

Real Time Audio Signal Processing in Java

Joshua N. Wurtz

Mentor: Bruce Mechtly, Computer Information Sciences

Real time audio signal processing in Java requires consideration of the computational power of the system. An intuitive GUI allows users to adjust the window and frames per second to effectively process the audio signal. This window and frame rate adjustment can allow users to perform actual time audio signal processing on a greater range of systems. This is demonstrated with echo, flanging, and pitch-shifting.

18

Pro Ana: Dying to be Thin

Erin Marie Benson

Mentor: Maria Raicheva-Stover, Mass Media

In spite of vocal public campaigns, there are still nearly 10 million females and 1 million males fighting an eating disorder (www.nationaleatingdisorders.com). With the popularity of video sharing web sites like YouTube, the Internet has become a primary space to promote eating disorders. The researcher studied how YouTube videos are used to promote the thin ideal and turn it into a lifestyle. “Thinspirations,” or videos of extremely thin young women, are created with either celebrity or “real girl” images and include songs and sometimes “how to’s.” The content analysis of the ten “Thinspiration” videos revealed that they were created with the intent to reinforce the thin ideal. Each video had background music that pertained to either an eating disorder or the struggle and pain related to an eating disorder. It also revealed that those who commented were mainly in the age range of 12 to 19 – the primary demographic impacted by eating disorders – and were oftentimes using the videos as a reinforcement of their eating disorder as well as to find a support group of “Ana buddies.”

19

Exploration of extracorporeal membrane oxygenation’s support for influenza A (H1N1) associated acute respiratory distress syndrome

Feng Zhang

Mentor: Lori Edwards, School of Nursing

WTE

Purpose: Exploration of the efficacy of the use of extracorporeal membrane oxygenation (ECMO) to sustain life for patients who do not respond to conventional treatments for influenza A (H1N1) associated acute respiratory distress syndrome (ARDS). Methods: Synthesis of a comprehensive review of literature. Conclusions: The efficacy of ECMO treatment in patients with H1N1 associated ARDS varies based on severity of patients' illness. Also, there are multiple barriers to access of ECMO treatment. Further research is needed to support the recommendation for and development of guidelines for ECMO use among patients with influenza A (H1N1) associated ARDS.

20

The Mainstream Body Modification Phenomenon: Visible Tattoo and Facial Piercing Acceptance in the Workplace

Crystal N. Burgoon

Mentor: Tracy Routsong, Communication

WTE

With the ever-growing popularity of body modification in mainstream Western culture, questions of its effects on the participating individuals in reference to their hirability and employment status in the modern-day workplace arise. In this particular research, body modifications will be recognized as a relevant form of nonverbal communication. This study will set out to describe the experiences body modified individuals have encountered in the workplace regarding

employer reactions to and/or allowances of mainstream visible tattoos and facial piercing. The method of inquiry will be a textual analysis of online data gathered from a collection of lived experiences located on the Facebook group pages: Tattoo Acceptance [sic] in the Workplace and Piercing Acceptance in the Workplace. Maximum variation sampling will be employed to discover data about individuals whose body modifications have not been an issue in the workplace, those whose body modifications have been an issue in the workplace, those who have body modifications but choose to limit their visibility, and those who have fully visible body modifications. Due to the extreme size of these groups, the researcher will attempt to locate 50 body modification participants for each of these sampling variations. The emerging themes will be applied via Jackson's cultural contracts theory to describe the overall essence of the phenomenon.

21

The Effect of Stereotype Threat on Performance

Thiwan Shepard

Mentor: Joanne Altman, Psychology

WTE

African-Americans, Latinas, and women are typically stereotyped. Awareness of this stereotyping often leads to "stereotype threat". Stereotype threat is the contextual provocation of fear concerning one's in-group negative stereotypes. The purpose of this study was to determine if visual empowerment images would mediate/moderate the effects of stereotype threat. The results show that everyone performed better after viewing the empowerment presentation. However, further analyses found that the effect was present only for African-American men. The implications of these findings will be discussed.

22

Visual Acuity Comparison in Developmental Stages of the Praying Mantis (*Tenodera sinensis*)

Lisa A. Ille, Taylor McGown, and Haley A. Mitchell

Mentor: Ursula Jander, Biology

The praying mantis is a predatory insect that catches live prey with extreme accuracy. In this study we want to determine possible changes in visual acuity throughout the various developmental stages of Mantis, from the first instar to the adult stage. Insects have compound eyes composed of many single eyes. In order to optimize vision, these eyes have to balance their sensitivity to light intensity and their strength of resolving power. The larger the surface of the single eye, the more light it can capture. However, the larger the single eyes, the fewer eyes that can be fit onto the whole compound eye. In turn, this decreases the resolution. From microscopic images we measured the visual angle between the single eyes and along the long axis of the eye, and also the number and size of the eyes making up the compound eye. After these measurements, we conclude that the visual acuity increases within the sequential instars up to the adult stage.

Collectivism vs. Individualism: A Cultural Comparison between Native Americans and Non-Ethnic Americans on Social Connectedness and Happiness

Danielle McDonald

Mentor: Joanne Altman, Psychology

WTE

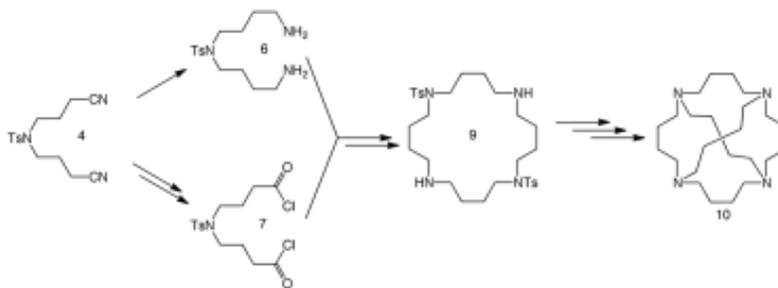
Research shows that certain cultures are either collectivistic (value family) or individualistic (value independence) (Triandis, 1995). America is an individualistic nation (Triandis, 1995; 2001). However, there are sub-populations within the United States which are collectivistic, while still living in the bigger individualistic culture. Although studies have looked at Mexican-Americans and Asian-Americans, non have researched Native Americans who share the cultural values of family and community found among traditionally collectivistic countries. In addition, research shows that this social connectedness of family and community is tied to happiness (Kim, Sherman, & Taylor, 2008). Thus, the purpose of this study was to compare Native Americans in the Kansas region to Caucasian Americans with regard to their individualistic and collectivistic tendencies and their connectedness and happiness. Our results show that Native Americans were not more collectivistic than Caucasians. However, men, overall, were more individualistic than women, except among Native Americans. Native American men did not differ from other men, but Native American women were more individualistic than other women. In addition, individuals, across race, who were categorized as collectivistic were more connected.

Progress Towards a Multi-gram Scale Synthesis of 1,11-Diaza-6,16-ditosylamidacycloicosane: A Key Intermediate in the Synthesis of [46]Adamanzane

Diana M. Crain

Mentor: Shaun Schmidt, Chemistry

The macrocycle, 1,11-diaza-6,16-ditosylamidacycloicosane, is an important intermediate in the synthesis of the cage [46]Adamanzane. Cyclization is achieved via addition of a diacid chloride (compound 7) to a diamine (compound 6), both of which were synthesized from the same dinitrile (compound 4). A new acid hydrolysis of this dinitrile was also developed, through various trials in different acidic and basic conditions; the results of these trials will be presented. Work was also done on standardizing the acid-base workup of a borane reduction of the same dinitrile. The synthesized compounds were analyzed using IR and ¹H-NMR spectroscopy.



25

Medical Pluralism at a Midwestern Herbal School

April Sumpter

Mentor: Karen Kapusta-Pofahl, Sociology – Anthropology

WTE

This study uses ethnographic fieldwork at a Midwestern herbal school to explore the ways that sickness, medicine, and healing are conceptualized among faculty and students. I argue that medical pluralism characterizes the healing modalities taught to students. The herbalist uses an integrative approach, incorporating the wise woman, heroic, and scientific traditions into ways of thinking about healing. This is important to applied anthropology because the mainstream herbal industry mimics the scientific tradition, therefore limiting the efficacy of herbal medicine for the consumer.

26

Reaction Kinetics of a Solvent Free Wittig Reaction using FT-IR Spectroscopy

Donovan R. Briggs

Mentor: Stephen Angel, Chemistry

WTE

The rate of the solvent-free Wittig reaction of 4-bromobenzaldehyde with (carbethoxymethylene)triphenylphosphorane to form (*E*)-ethyl 3-(4-bromophenyl)acrylate is determined by fourier transform infrared spectroscopy. The rate of product formation is monitored by tracking the increase of the absorbance intensity at 1705 cm^{-1} and the rate of reactant decay is monitored by tracking the decline of the absorbance intensity at 1604 cm^{-1} . The reaction is performed under nitrogen to prevent ambient water vapor from being absorbed by the reaction mixture. The rate is fit to models of solid-solid systems in order to determine if the reaction is a solid-solid reaction or merely a solvent-free reaction.

27

The Role of MMP's in Ditation of the Chick Limb

John D. Stamm and David Robert Lee Hollenbeck

Mentor: Duane Hinton, Biology

Development of chick embryos has proven an ideal model for the manipulation and study of limb formation. From bundles of condensed cells, proliferation, differentiation and cell death lead to normal digitation. In particular, extensive tissue remodeling is required to produce functional digits, utilizing a multitude of enzymes and growth factors to eliminate cells and extracellular matrix. The enzymes of interest are matrix metalloproteinases (MMPs). Last summer we studied the effects of Ilomastat, an MMP inhibitor, which was unable to noticeably alter normal digitations in chick embryos. Possible reasons for this may include a short half-life or too low concentration of the inhibitor. Due to these inconclusive results, we have decided to take a molecular approach to the inhibition of the MMPs in chick limb development. We plan to inhibit MMP-2 enzyme activity by using inhibitory Morpholino oligos specific for MMP-2. We will micro-inject MMP-2 Morpholinos into the vitelline vein on day 4 chick embryos for delivery via circulation. On subsequent days of development, the limb buds will be isolated to

measure MMP-2 inhibition by zymography and staining of cartilage. We present results of the development of an MMP zymography assay for this model system. Once we have established a procedure for successful MMP-2 inhibition, we will be able to apply that to further studies measuring the effects of both MMP-2 as well as other MMPs on apoptosis occurring in limb development.

28

Environmental Isolation of Thermotolerant Ameobae from Wolf Creek Generating Station Cooling Waters

Trent Snyder

Mentor: John Mullican, Biology

WTE

Naegleria fowleri is a free-living, thermophilic, amoeboflagellate that is the causative agent of rare, yet severe disease of the central nervous system called Primary Amoebic Meningoencephalitis (PAM), which is nearly always fatal. PAM has yet to be diagnosed in Kansas. It has, however, been reported in two neighboring states of Kansas, Oklahoma and Missouri. The goal of this research is to demonstrate the presence of *N. fowleri* in Kansas through both classical morphological analysis and genetic screening using the polymerase chain reaction (PCR). Water samples were collected under special circumstances with a desire to learn whether *N. fowleri* could be easily extracted from the environment in the middle of winter. To test this, seven samples were taken from the cooling waters at Wolf Creek Generating Station in Burlington, KS and plated onto a low nutrient agar with a lawn of UV killed *Enterobacter aerogenes* as a food source. Of those samples, six yielded 38 separate amoeba samples to be further analyzed. Amoeba isolates are currently being analyzed for flagella formation, thermotolerance at 45°C, and PCR using *Naegleria* and *N. fowleri*-specific primers. Microscopic examination of many of the amoebae show morphology characteristic of *Naegleria sp.*

29

Molecular Cloning and Analysis of Putative Telomerase Gene Fragments from Naegleria gruberi

Kevin D. Lorson

Mentor: John Mullican, Biology

WTE

For this research project we are attempting to locate the putative telomerase gene, encoding the DNA polymerase activity, within the *Naegleria gruberi* genome using degenerate PCR. *Naegleria* is an amoeba that undergoes many interesting processes such as developing flagella under stress, encysting under different environmental stresses, and undergoing a division process similar to mitosis called pro-mitosis. Telomerase is an enzyme that adds DNA sequence repeats to the ends of chromosomes, protecting the genome from loss of information during successive replication events. This study was designed to investigate whether or not *Naegleria gruberi* has the gene that codes for the protein component of telomerase to help us understand the organism and its replication/gene repair process better. Following degenerate PCR, multiple candidate DNA fragments were generated and ligated into a pGEM-T Easy vector for cloning. Six clones

were selected for DNA sequence analysis to determine whether or not these clones contain telomerase or telomerase-like sequences.

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Strategy to Complete the Sequence Analysis of the Ribosomal DNA Plasmid From Naegleria fowleri

Taylor C. Easley and Ashley E. Klone

Mentor: John Mullican, Biology

WTE

Naegleria fowleri is a freshwater free-living amoeboflagellate that can be found in water sources worldwide. Unlike its close relative, *Naegleria gruberi*, *N. fowleri* is pathogenic and is the causative agent of PAM, a rare disease that results in meningitis-like symptoms and nearly always death. The goal of this project is to complete the DNA sequence analysis of the 16 kbp ribosomal DNA (rDNA) plasmid of *N. fowleri*. Approximately 2 kbp of the plasmid, located downstream of the rRNA cistron, remains to be sequenced. Once completed, we may then begin to examine the differences between the rDNA plasmids from *N. fowleri* and *N. gruberi* and perhaps gain a better understanding of the pathogenic nature of *Naegleria fowleri*. The strategy to complete the sequence analysis involves the generation of deletion clones of an 8 kbp EcoRI subclone (pFOWLR8) using ExoIII nuclease followed by S1 nuclease digestion. Ligations of these ExoIII/S1 deletion molecules will then be transformed into *E. coli* SURE™ strain (Stratagene). Plasmid DNA will be extracted from these deletion clones and will be subjected to DNA sequence analysis using the LI-COR 4300 DNA Analyzer, which uses a laser to detect infrared dyes incorporated into DNA sequences. DNA sequencing gels will be analyzed using e-Seq software (LI-COR) and the MacVector Assembler software will be used to align the newly generated DNA sequences into a single consensus sequence of the remaining portion.

31

Multiple Radical Search of Simplified Chinese Characters

Jizhou Li

Mentor: Bruce Mechtly, Computer Information Sciences

A radical is a major part of a Chinese Character which can be used to search for characters in a dictionary. The typical dictionary search for characters uses only one radical, which is inconvenient because some radicals categorize hundreds of characters. We've looked at over 3800 characters and assigned multiple radicals and single strokes to each character. Using this data, we created a new search program for people to search for Chinese characters using multiple radicals. We will demonstrate how the multiple radical search allows the user to find characters much more easily than the traditional method.

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Differences Between Speech Patterns of Men and Women Portrayed in the Media

Katelin R. Harrell

Mentor: Sarah Ubel, Communication

The use of language is a very important variable when considering how persuasive a message is. Research indicates that typically a powerful message is one that does not contain many hedges, hesitations, or intensifiers. Studies suggest that the use powerful speech makes the speaker appear more authoritative and credible. This study examined the differences between men's and women's use of powerful and powerless speech patterns in a legal television show. The show was evaluated on how the media portrayed messages of men compared to women, whether or not women engaged in more powerless speech patterns. A content analysis was done in order to determine the differences in the amount of hedges, hesitations, and intensifiers that were used by the actors.

33

Synthesis of the Precursors of Expanded Oxophlorins

Riley Eugene Ross

Mentor: Sam Leung, Chemistry

Oxophlorins are porphyrin-like compounds that contain a carbonyl group between two of the pyrrole subunits in the macrocycle. This research project involves the synthesis of precursor compounds that can later be used to attempt the synthesis of expanded oxophlorins, which contain additional carbon-carbon double bonds within the macrocycle of a normal oxophlorin. The synthesis of expanded oxophlorins may spur the development of new photosensitizers for photodynamic therapy (PDT) for use in the treatment of cancer or new contrast agents in magnetic resonance imaging (MRI).

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Molecular Cloning and Sequence Analysis of a Potassium Two-Pore Channel (K2P) Gene from Naegleria gruberi, NEG-M Strain

Danielle M. Horton

Mentor: John Mullican, Biology

WTE

Potassium channels control the flow of potassium ions across membranes and play important roles in various types of cells in nearly all organisms. Studies in plants and animals have shown that K2P proteins are sensitive to environmental changes including pH, oxygen, and certain nutrients. The amoebae genus, *Naegleria*, respond to their environment by transforming into either flagellates or cysts during changes such as those previously mentioned. A cloned portion of the *N. gruberi* K2P gene was confirmed by DNA sequence analysis. Total RNA was harvested from *N. gruberi* NEG-M strain grown axenically in NB media supplemented with calf serum. High quality RNA samples extracted from the amoebae were confirmed via gel electrophoresis. We designed sequence specific primers for the K2P channel gene which are being used to generate cDNA of the entire gene-coding region via RT-PCR for cloning in both

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standard and expression vectors. Ultimately, expression of the *Naegleria* K2P protein in mammalian cell lines lacking potassium channels will permit an analysis of its sensitivity in different environments.

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Kansas in the Movies

Rachael Metzger

Mentor: Thomas Averill, English

Kansas in the Movies is a tool for those interested in the movies that take place and were filmed here in Kansas. This website also lists the directors of all of these movies, and creates ties to the Map of Kansas Literature. It also lists the actors and actresses born here in Kansas, as well as where and when they were born. The information for this site was found using the Internet Movie Database (IMDb.com). The site also provides articles from the Kansas Historical Society and other resources.

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Retro Cameras

Crystal F. Katzer, Sarah E. Eaden, Curtis Michael Steinmetz,

Kris Roberts, Dorothy J. Jones, Danielle Nicole Morgan

Linnzi Fusco, Laramie L. Hulse, Erik M. Boeselager

Karol Jean L. Thies, Pam Manning, Travis Garwood

Deedra Baker, Amanda Stoller, Cecilia Gonzales-Rebeck

Matthew James Linn, Patricia Powell, and Asha Slack

Mentor: Mary Dorsey Wanless, Art

WTE

Enjoy student research into a multitude of old cameras! Students have discovered old image-makers in attics, basements, antique and junk stores. They have made them operational through direction from experts in the field, and by downloading camera manuals. They have researched photographers using the cameras and a history of the era of usage. Through a combination of analog, film and digital, they are producing images. Experience the past through an exhibit of their photographs!

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