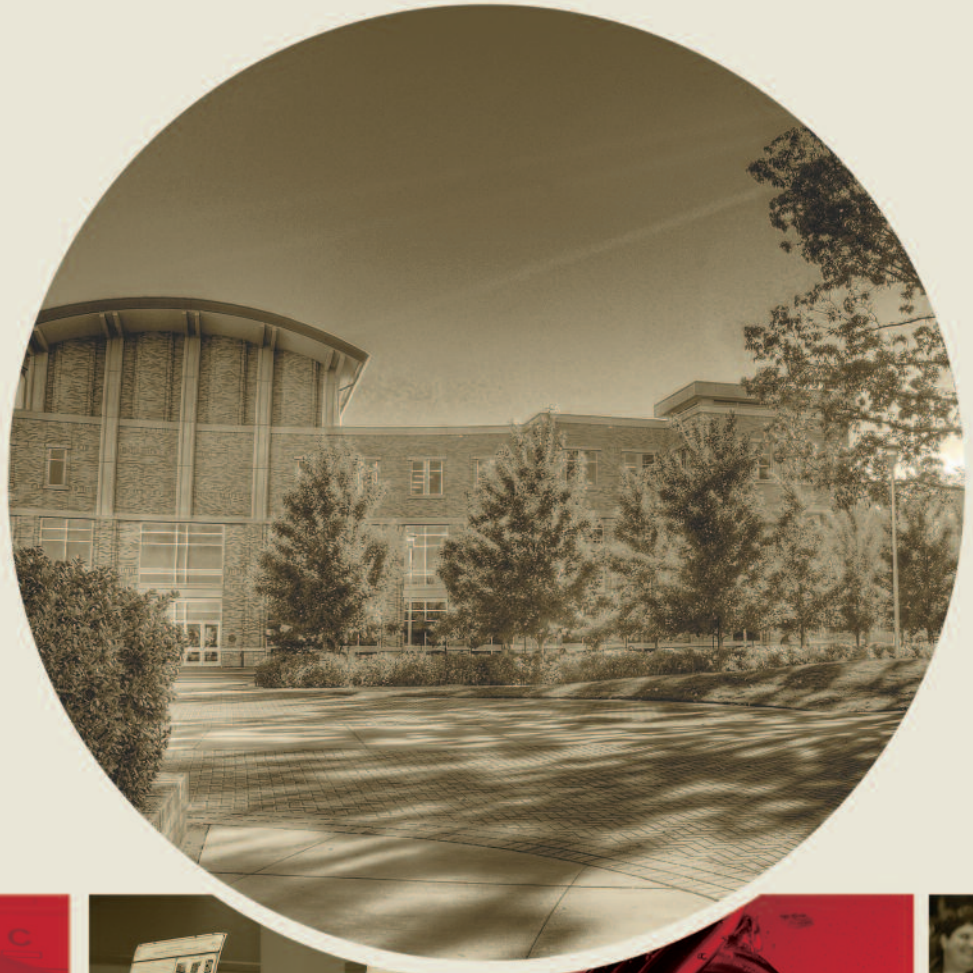
CREATE @ STATE

A Symposium of Research, Scholarship & Creativity



Thursday, April 11, 2013 | Arkansas State University | Carl R. Reng Student Union

CREATE @ STATE

A Symposium of Research, Scholarship & Creativity

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ARKANSAS STATE UNIVERSITY

Welcome to the third celebration of ***Create @ STATE: A Symposium of Research, Scholarship & Creativity!*** ***Create @ STATE*** is an annual event dedicated to the pursuit of research and creativity at Arkansas State University. The Office of Research and Technology Transfer is pleased to sponsor this event. The presentations showcase the scholarly activity from students all across our campus.

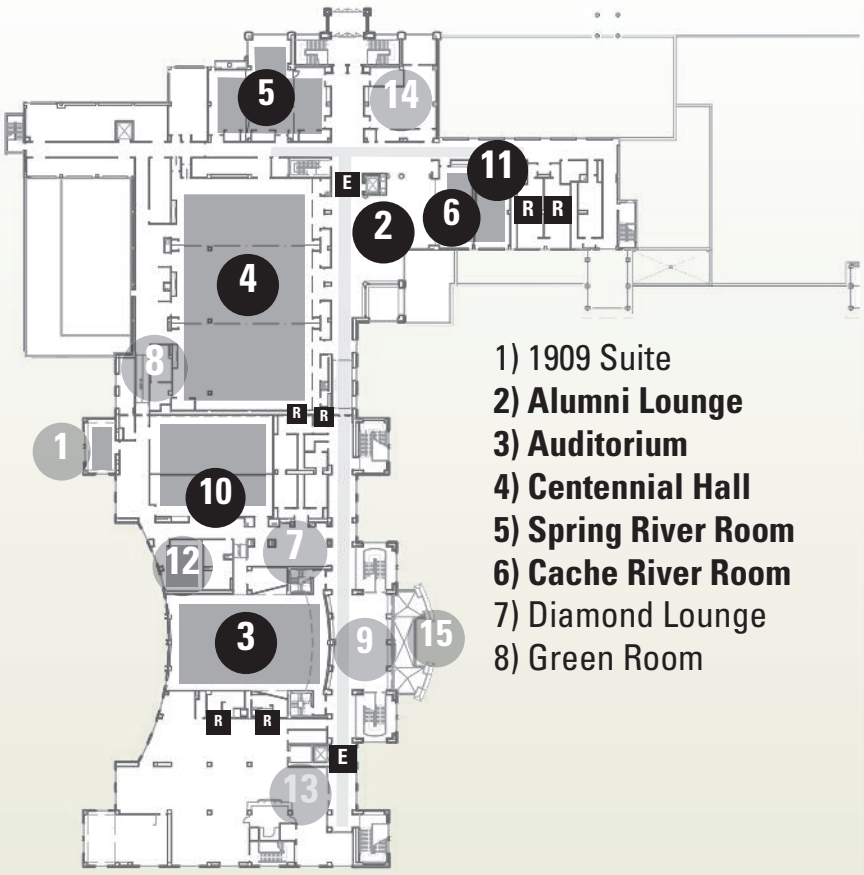
I am proud of the intellect, discovery and innovation taking place at ASU. This event is a testament to the rich learning experiences that are provided by our outstanding faculty. I hope you will participate in as many of the day's activities as possible.

Congratulations ASU students!

Best regards,

Andrew Sustich, P.h.D.
Vice Provost for Research and Graduate Studies

TIME	EVENT	LOCATION
9:00 – 9:30	**Welcome & Refreshments**	Alumni Lounge
9:30 – 10:45	**Oral Presentations of Papers & Research Findings**	Various Locations Refer to schedule on page 3
	Poster Judging *(Faculty Judges Only)*	Centennial Hall
11:00 – 12:15	**Oral Presentations of Papers & Research Findings** **Video Pitch Competition**	Various Locations Refer to schedule on page 4 Saint Fancis River Room
12:30 – 1:45	**Poster Session**	Centennial Hall
	Refreshments	Centennial Hall
2:00 – 3:15	**Oral Presentations of Papers & Research Findings** **Three Minute Thesis (3MT©)**	Various Locations Refer to schedule on page 5 Saint Francis River Room
3:30 – 4:00	**Creative & Artistic Performances**	Auditorium
4:15 – 4:45	**Awards Ceremony**	Auditorium



1) 1909 Suite
2) Alumni Lounge
3) Auditorium
4) Centennial Hall
5) Spring River Room
6) Cache River Room
7) Diamond Lounge
8) Green Room
9) Heritage Plaza Lounge
10) Mockingbird Room
11) Saint Francis River Room
12) Pine Tree Room
13) Under Renovation
14) Testing Center
15) Heritage Plaza Veranda

CACHE RIVER ROOM

9:30 – 10:45 Student Perceptions of Education and Retention

Assessment: Focus Groups for Student-Centered Commencement
Austin Abbot, Psychology (Undergraduate), Felicia Oglesby, Psychology (Undergraduate), Katheryn Bobo, Psychology (Undergraduate)

Student Success and Motivation in Online Versus Traditional Lecture Classes
Hannah Wright, Education/Biological Sciences (Undergraduate)

Perceived Stress in Undergraduate Nursing Students
Addie Kortan, Nursing (Undergraduate)

Inside the Minds of ASU: How Cross-Cultural Students Perceive Their University
Brianna Adams, Interdisciplinary Studies/Psychology (Undergraduate)

Retention of Mathematics and Computer Science Majors
Tara Banks, Mathematics (Graduate)

11:00 – 12:15 Ethics in NCAA, Professional Sports and Coaching

Ethical Decision Making by Collegiate Coaches
Jeremy Thornburg, Sport Administration (Graduate), Barrett Trotter, Sport Administration (Graduate)

Sport Agency Boarding Schools: Ethicality, Legality and NCAA Compliance
Andrew Schneider, Sport Administration (Graduate), Jonathan Hays, Sport Administration (Graduate)

NCAA Minority Hiring Practices: African-American Head Coaches in NCAA Division I Institutions
Reginald Koggu, Sport Administration (Graduate), Qiyao Yin, Sport Administration (Graduate)

Doping Prevention in Elite Professional Sports
Bhargav Sanapala, Sport Administration (Graduate), Deonte Stancil, Sport Administration (Graduate)

The Acts of Cheating, Professional Fouls and Gamesmanship in Sports
Lyle Morris, Sport Administration (Graduate), Kate Titsworth, Sport Administration (Graduate)

Character in Sports
Lucas Bateman, Sport Administration (Graduate), Nicholas Hays, Sport Administration (Graduate)

2:00 – 3:15 Molecular and Chemical Analyses

Examining Mineral Variability with Infrared Spectroscopy
Sarah Stuckey, Physics (Undergraduate)

Degradation of Bat Wings by *Geomyces Destructans* Proteases
Cheyenne Gerdes, Wildlife Ecology and Management (Undergraduate)

Comparative Lipid Synthesis and Acyl Saturation of Psychrophilic and Psychrotolerant *Geomyces* Fungi
Hannah Blair, Wildlife Ecology and Management (Undergraduate)

Rapid Identification of Salmonella Serovars by Flow Cytometry-based Multiplexing Analysis System
Muhsin Aydin, Molecular Biosciences (Graduate)

MOCKINGBIRD EAST

9:30 – 10:45 Gender Roles in Victorian Literature and Society

How Victorian Masculinity Prevents Character Growth in *The Tenant of Wildfell Hall*
Emily Hill, English (Undergraduate)

Gender Roles in Early Twentieth Century Ireland
Logan Howard, Middle Level Education (Undergraduate)

Bronte and Gender Roles
Natalie Corter, English (Undergraduate)

The Effects of Suppression on Women Writers
Jerin Swafford, English (Undergraduate)

Gender in *The Tenant of Wildfell Hall*
Jennifer Ulloa, English (Undergraduate)

MOCKINGBIRD EAST (CONTINUED)

11:00 – 12:15 Engaging Audiences: Literary Devices and Genres

The Innocent Eye: Personal and Political Change Through a Child's Lens
David Beck, English (Undergraduate)

Filling the Gap: Giving Readers Purpose with Science Fiction
Tess Kee, Middle Level Education (Undergraduate), Teresa Jones, Middle Level Education (Undergraduate)

Mary Sues in Literature
Aaron Hattie, English (Undergraduate)

The Impact of Honesty in *The Tenant of Wildfell Hall*
Mark Lovins, English (Graduate)

2:00 – 3:15 Fantasy Baseball, Space Elevators, Video Controls, and High-Performance Computing

Automatic Control of Video Sources Through RFID in Online Classes
Keane McGough, Computer and Information Technology (Undergraduate)

Mathematical Modeling for a Space Elevator
Robert Monteforte, Mathematics (Graduate)

Hardware-Aware Computing: Achieving High Performance Computing in Heterogeneous Systems
Matthew Manning, Mathematics/Computer Science (Undergraduate)

A Multivariate Statistical Analysis of Fantasy Baseball
Courtney Briney, Mathematics (Undergraduate)

MOCKINGBIRD WEST

9:30 – 10:45 Growing Hairy Roots for a Healthy Future

Secondary Metabolite Enhancement in Hairy Root Cultures of *Scutellaria Lateriflora* by Treatment with Cyclodextrin and Methyl Jasmonate
Zach Marsh, Biological Sciences (Undergraduate)

Arachidin-1: Bioproduction in Hairy Root Cultures of Peanut and Evaluation of its Neuroprotective Properties
Linda Ogutu, Biological Sciences (Undergraduate)

Engineering Hydroxyproline-O-Glycosylated Peptide Motifs in Hairy Roots for an Enhanced Bioproduction Platform
Ningning Zhang, Molecular Biosciences (Graduate)

11:00 – 12:15 Understanding and Responding to Variability

Understanding Spatial and Temporal Precipitation in Northeast Arkansas Using Voluntary Rain Gauge Network
Alicia Kiech, Civil Engineering (Undergraduate)

Trend Analysis of Temporal and Spatial Patterns of Human Elephant Conflict in Nepal
Dinesh Neupane, Environmental Sciences (Graduate)

Monitoring Insect Pest Populations Across Variable Fields in Midsouth Cotton Through Management Zones Based on Soil electrical Conductivity With and Without Wheat Cover Crop
Kelly Erin, Plant and Soil Science (Graduate)

2:00 – 3:15 Explorations in Business and Technology

Study of Commercial Applications of Micro Wind Turbines in a City Environment
Keith Arnoult, Technology (Undergraduate)

Changing Fuel Efficiency Standards
Rachel Bickley, Technology (Undergraduate)

Dual-Role Balance: An Exploration of Interrole Conflict and Implications of Success Beyond the Glass Ceiling
Taylor Allison, Accounting (Undergraduate)

Upasana: Traditions Thriving Sustainably
Camille Allensworth, International Business (Undergraduate)

SPRING RIVER S

9:30 – 10:45 Applications in Mathematics

Numerical Approaches to Thermoelastic Rods with Dynamic Contact
Natanya Clark, Mathematics (Undergraduate)

Applying the Exterior Matrix Method to the Inclined Cable Problem
Matthew Manning, Mathematics/Computer Science (Undergraduate)

Bounded Area Tests For Comparing the Dynamics Between ARMA Series
Ashton Erwin, Mathematics (Graduate)

Properties and Construction of Generalized minimum Aberration Designs
Laura White, Mathematics (Undergraduate)

11:00 – 12:15 Studies in Renewable Energy Sources

Differential Scanning Calorimetric Analysis on Three Molten Salts for Renewable Power Plant Applications
Donavon Tony, Mechanical Engineering (Undergraduate)

Synthesis of CZTS with Applications to PV Cells
Jerry Maupin, Physics (Undergraduate)

Construction and Operation of Experimental Simulator with Thermodynamic Modeling for Binary/Ternary System
Manpreet Bham, Mechanical Engineering (Undergraduate)

Electron Beam Vacuum Evaporation of Thin Films
Joshua Vangilder, Environmental Sciences (Graduate)

Synthesis and Characterization of Nanoporous Titanium Dioxide Membranes for Environmental Photocatalytic and Filtration Applications
Chenoa Summers, Environmental Science (Graduate)

2:00 – 3:15 Factors in Perception and Development

Differences in Perceptions of Why Stalking Occurs as a Function of Age
Sarah Bish, Psychology (Undergraduate), Stephanie Cook, Psychology (Undergraduate), Brenesha Hardiman, Psychology (Undergraduate), Corey Green, Psychology (Undergraduate)

Cross-Cultural Perception of Common Colors
Hunter Sadler, Psychology (Undergraduate)

The Untold Truth: Men Are Beaten Too
Angela Williams, Social Work (Undergraduate), Felicia Sanders, Social Work (Undergraduate), Alquonto Carradine, Criminology (Undergraduate), Amy Dawson, Interdisciplinary Studies (Undergraduate)

Effects of Religious Views of a Defendant and a Jury on Verdicts
Sarah Bish, Psychology (Undergraduate), Hayley Beall, Psychology (Undergraduate), Eric Lee, Psychology (Undergraduate), Michelle Cebada Sencion, Psychology (Undergraduate)

Developmental Play and Sensitivity to Nicotine
Elizabeth Snow, Psychology (Graduate)

SPRING RIVER U

11:00 – 12:15 Influencers of History and Culture

Hitchhiking and the Road
Emily Ladd, English (Undergraduate)

History and Culture of the American Road
Korey Speaight, Accounting (Undergraduate)

The Beat Generation
Emily Naylor, Mathematics (Undergraduate)

Alice L. Preston: Educator, Advocate, Mountaineer
Kayla Bradbury, Theatre (Undergraduate)

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ARTISTIC PRESENTATIONS

Arkansas State University Trumpet Ensemble

Christa Burgesss
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Crist Blackwell
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Josh Mobley
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Josh Poff
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Cassidy Lucas
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Adonias Finch
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CREATE @ STATE

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ORAL PRESENTATIONS

Listed in alphabetical order by lead presenter

Abbott, Austin
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Oglesby, Felicia
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Bobo, Katheryn
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Assessment: Focus Groups for Student-Centered Commencement

Graduation is a milestone that students at Arkansas State University look forward to their entire academic careers; however, the ceremony may be lacking the interest of the students. After attending his first ASU graduation ceremony, the Chancellor believed the proceedings could be more student-centered. We conducted focus groups of undergraduate students in an effort to gather their ideas about what would make the commencement ceremony more student-centered. An analysis of their responses will be presented along with suggestions regarding changes that should be implemented.

Faculty Mentor: Joshephine Welsh, Office of Assessment, jwelsh@astate.edu

Adams, Brianna
Interdisciplinary Studies/Psychology, Undergraduate
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Inside the Minds of ASU: How Cross-Cultural Students Perceive Their University

How well does our university meet the needs of its diverse student population? The purpose of the present study was to compare the perceptions of university learning and physical environments between US and international students at ASU. Data was collected via surveys, with subject areas including ASU's part in global communities, social, learning, physical environments, services on campus, and safety issues. Statistical analysis was conducted to determine cross-cultural differences and to identify variables that significantly contribute to overall ratings of attraction to the university. Results may be used to better understand cross-cultural perceptions and suggest potential improvements on ASU campus to better meet the needs of the diverse student population.

Faculty Mentor: Dr. Irina Khramtsova, Psychology and Counseling, ikhramtsova@astate.edu
Other Authors: Trisha Arnold, Skyler White, Bryanna McClanahan, Gabrielle Gibson

Allensworth, Camille
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Upasana: Traditions Thriving Sustainably

Upasana is a very different kind of business from the ones we see so often. As a workplace, it has daily procedures that include a tea time and meditation. From a business perspective, it has some real potential for growth in the future. Many companies are ignoring the big issues we are faced with because of the costs associated with the lifestyle change that is so necessary. Upasana is based on socially responsible principles. From this idea, the beneficial projects of Upasana have developed. There is no greater feeling than investing in something that is worthwhile and doing good for the world, which is why Upasana has such great potential to make big changes. There is hope for the future, but only if we unify our efforts to create a sustainable global economy.

Faculty Mentor: Dr. Gauri-Shankar Guha, Economics and Finance, gguha@astate.edu

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Dual-Role Balance: An Exploration of Interrole Conflict and Implications of Success Beyond the Glass Ceiling

Work stress is triggered by internal environmental factors as well as external, nonwork pressures that spill over into the workplace. Existing research suggests that the most common work-related source of stress for women is role conflict. Interrole conflict is caused by opposing expectations related to two separate roles assumed by the same person, such as a woman who is both a mother and an employee. This study attempts to answer the question of whether society accepts interrole conflict for working women. To try and answer this question, I will explore a variety of reactions to workplace stressors for women, including the all too real "glass ceiling," in an effort to reveal the negative implications that inevitably manifest when women feel they have to fight the gender-inferiority battle.

Faculty Mentor: Dr. Faye Cocchiara, Management and Marketing, fcocchiara@astate.edu

Arnoult, Keith
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Commercial Applications of Micro Wind Turbines in a City Environment

If Jonesboro Arkansas, wanted to offset some of the peak demand for power in the community, alternative sources are the answer. Traditionally, energy is bought and sold on a market just like the stock exchange. The city has to project what it thinks it's customers will use in electricity the next day. Uncertain weather patterns and global warming can create havoc on these predictions. This, in turn, can lead to unnecessary fees and charges. The city of Jonesboro already has two backup generators on standby for this reason. These generators require fossil fuels to operate and thus generate pollution. An alternative is to use wind energy to supplement power demands. According to NREL data Arkansas has a wind energy potential of 9200 MW. Installing micro wind turbines for power production can help the city of Jonesboro to offset the peak power demand and its carbon foot print.

Faculty Mentor: Dr. Rajesh Sharma, Technology, rsharma@astate.edu

Aydin, Muhsin
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Rapid Identification of Salmonella Serovars by Flow Cytometry-Based Multiplexing Analysis System

Salmonella is the leading cause of foodborne illnesses in the US. Due to its deleterious effects on public health and the economy, it is highly desirable to develop a detection method that can identify Salmonella in food before it reaches consumers. The goal of this study was to develop a sensitive, rapid, and specific bead-based multiplexing array system to detect and identify Salmonella serotypes using pattern recognition analysis. The developed bead-based multiplex array was able to detect synthetic target DNA of complementary sequence at concentrations as low as 1 pM. When combined with PCR, it could detect Salmonella at 10 CFU/mL within 6 hrs. Our results indicate the developed array can be a rapid and reliable method for simultaneous detection and identification of Salmonella.

Faculty Mentor: Dr. David Gilmore, Biological Sciences, dgilmore@astate.edu
Other Authors: Dr. David Gilmore; Clayton Preston, Biology; Jackie Carter, Chemistry;
Dr. Soohyoun Ahn-Food Science and Human Nutrition/University of Florida

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Retention of Mathematics and Computer Science Majors

Qualitative studies suggest that Computer Science and Mathematics undergraduates still face barriers to success. Therefore, this research study focuses on the factors that influence students to choose and pursue degrees in these fields. Students pursuing such degrees highlighted five departmental characteristics: (1) provide welcoming and diverse environments, (2) provide a variety of structures to support students throughout their academic careers, (3) facilitate opportunities for interaction among members, (4) alumni create opportunities for interaction among members, (5) faculty create opportunities for interaction among themselves and students and value resulting relationships. Departments should foster relationships, encourage advisers to be mentors, provide support for success, and involve students in research early.

Faculty Mentor: Dr. Amanda Lambertus, Mathematics & Statistics, alambertus@astate.edu

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Hays, Nicholas
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Character in Sports

Do sports build character? It has been suggested that sports keep students engaged, lowering dropout rates and decreasing delinquent behavior. Sports benefit health-related issues including cardiovascular fitness, muscular strength, and disease awareness. Most athletes would agree that involvement in athletics can develop peer relationships, respect for rules, and competitiveness, display courage, show leadership, and foster citizenship.
Other researchers believe sports negatively affects the character of athletes, and as the level of sport competition increases, the level of character decreases. The pressure to win in sports may lead to poor character, demonstrated by overly aggressive behavior, cheating, and drug usage.

Faculty Mentor: Dr. David LaVetter, Health, Physical Education, and Sport Sciences, lavetter@astate.edu

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The Innocent Eye: Personal and Political Change Through a Child's Lens

Theorist R. W. Lid described the concept of the "innocent eye" as the narrative quality occurring when the speaker of a work details an event in his childhood in which he understands more now than he did when the event happened. In her graphic novel, Persepolis, Marjane Satrapi presents her childhood experiences in revolutionary Iran. While his work is not autobiographical, Hisham Matar's novel Anatomy of a Disappearance depicts an adolescent boy's struggles after his father, a political dissident, vanishes. Both works display Lid's concept, and both narrators move from childhood into early adulthood, thereby enriching the narration by illustrating the narrator's personal progress. Using Lid's concept, these works are able to present grave circumstances through an adolescent perspective, showing the narrator's personal growth and maturation and creating a personal narration for the reader.

Faculty Mentor: Dr. Kate Krueger, English and Philosophy, kkrueger@astate.edu

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Koch, John
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Construction and Operation of Experimental Simulator with Thermodynamic Modeling for Binary/Ternary System

This research is based on the production of electricity using concentrating solar power. A simulator for evaluation of the binary and ternary molten salts was constructed. Heating tapes were used to melt and maintain the temperature of salts. Thermocouples were used to record the temperature. Controllers were connected to the simulator to analyze data. Thermodynamic modeling by using total Gibbs energy minimization of a binary system was used to calculate the melting temperature with known chemical composition. Experimental data from the simulator was verified with modeling data. In future work, the modeling of ternary system will be accomplished and will be used to verify the experimental data.

Faculty Mentor: Dr. Kwangkook Jeong, Mechanical Engineering, kjeong@astate.edu

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Changing Fuel Efficiency Standards

Oil dependency has plagued the United States for nearly four decades. During the early seventies, Middle-Eastern countries that provided the U.S. with the majority of our crude oil decided to cut off exports of oil to Western countries as a means of punishment for their involvement in political Arab-Israeli issues. Fear was stricken into American society and a widespread panic grew quickly. With the idea of a potential gas shortage, there was a rush on gas stations for fuel, and several companies engaged in price gouging and a somewhat unreasonable pricing strategy. The price of gas went up and that increased overall costs of transportation of goods, which in turn trickled down to the consumer. Americans began to realize that dependency on and consumption of oil had a detrimental impact on more than just fuel costs. Oil dependency affected almost every aspect of daily operations and activities of life.

Faculty Mentor: Dr. Rajesh Sharma, Technology, rsharma@astate.edu

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Cebada Sencion, Michelle
Psychology, Undergraduate

The Effects of Religious Views of a Defendant and a Jury on Verdicts

Previous research on how a defendant's character influences a jury's decisions has focused on a combination of aspects like attractiveness, similarity to the jury, and political and social activity of a defendant. This study isolates how religious views influence a jury's verdict. The more religiously similar the defendant is to the jury, the more lenient the sentence. A 2x3 experimental design was used in this study.

Faculty Mentor: Dr. Karen Yanowitz, Psychology and Counseling, kyanowit@astate.edu

Blair, Hannah
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Comparative Lipid Synthesis and Acyl Saturation of Psychrophilic and Psychrotolerant Geomyces Fungi

Geomyces destructans (Gd) is a psychrophilic fungus that causes cutaneous infections in bats. *G. pannorum* (Gp) is a closely related psychrotolerant species that is a rare skin pathogen of vertebrates. Cold tolerant organisms adjust lipid synthesis to survive unfavorable habitats. Lipid profiles may partially explain ecological niche and Gd pathogenicity to bats. We incubated Geomyces at different temperatures and isolated fungal lipid content. Broad lipid classes were determined to be sterols, free fatty acyls, and triacylglycerides. Geomyces produced more 18:3 acyls at 5°C than at higher temperatures, which indicates a change in membrane lipid composition in response to environmental stress. Gd produced more unsaturated lipids than Gp, indicating lipid profiles are species specific.

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Other Authors: Evan Pannkuk, Environmental Sciences; Dr. Brett Savary, Arkansas Biosciences Institute

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Alice L. Preston: Educator, Advocate, Mountaineer

The purpose of this research is to illuminate the life of Arkansas educator and civil rights advocate, Alice Luberta Preston. Mrs. Preston changed history through her leadership during the 1965 integration of the Murfreesboro public schools. Her promotion as the first African-American appointed to the Arkansas Board of Education and her advocacy for the rights of Arkansas senior citizens until her death at the age of 102. My research uses mostly primary sources, including interviews with Preston's family and former students, personal letters, school records, state government documents and photographs. The remarkable feats of Alice Preston serve as a reminder that change is possible through diligence. Her efforts should be revealed to honor her legacy and inspire future reform in Arkansas.

Faculty Mentor: Dr. Sarah Wilkerson-Freeman, History, sarahwf@astate.edu

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A Multivariate Statistical Analysis of Fantasy Baseball

This thesis uses multivariate statistical analysis to more effectively choose players for fantasy baseball teams. The two multivariate statistical methods used are factor analysis and cluster analysis. Because there are too many variables to take into consideration when comparing players, factor analysis allows these variables to be reduced into factors. Next, a cluster analysis using the factors was used to group players into clusters based on player similarity. This will allow fantasy baseball team owners to find lower-cost players to use in place of expensive players without losing much performance.

Faculty Mentor: Dr. Seo-eun Choi, Mathematics and Statistics, seo-eun.choi@mathstat.astate.edu

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Numerical Approaches to Thermoelastic Rods with Dynamic Contact

In this paper, we study mathematical tools and numerical schemes for solving a system of partial differential equations that describes the displacement and temperature of a thermoelastic rod. From the continuous formulations, we set up numerical formulations using time discretization and a hybrid of the midpoint rule and the implicit Euler method. The boundedness of the energy function over each time step ensured numerical stability. The finite element method was also applied to set up the fully discrete numerical formulations. Their stability will be examined.

Faculty Mentor: Dr. Jeongho Ahn, Mathematics and Statistics, jeongho.ahn@mathstat.astate.edu

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Bronte and Gender Roles

This research paper explores and analyzes gender roles in the novel The Tenant of Wildfell Hall by Anne Bronte. This novel has diverse examples of how each character reacts to stereotypes associated with gender roles in the novel. The study will examine Emily Bronte's Wuthering Heights to see if there are, in fact, any differences in gender roles, since both novels are from the same time period and both authors are sisters. I will discuss how the novels relate in the portrayal of gender roles and their response to stereotypes within the texts. The paper also explores how the gender roles are depicted in both novels, crucial similarities and differences, and how they are important in a historical context, as well as a literary context.

Faculty Mentor: Dr. Kate Krueger, English and Philosophy, kkrueger@astate.edu

Erwin, Ashton
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Bounded Area Tests For Comparing the Dynamics Between ARMA Series

This talk presents a new test for discerning whether or not two independent, causal autoregressive moving average (ARMA) processes have the same autocovariance structure. This test utilizes a specific geometric feature of a time series plot of observations - namely, the area bounded between the line segments that connect adjacent points and the time axis. It will be shown that if you sample two ARMA processes and calculate the magnitudes of the two resulting bounded areas, then a significant difference among these areas tends to imply a significant difference in autocovariance structures.

Faculty Mentor: Dr. Ferebee Tunno, Mathematics and Statistics, ferebee.tunno@mathstat.astate.edu
Other Author: Dr. Ferebee Tunno

Gerdes, Cheyenne
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Degradation of Bat Wings by Geomyces Destructans Proteases

White-nose syndrome (WNS) is a wildlife disease caused by Geomyces destructans (Gd) that has resulted in the mass mortalities of North American cave bats. One clinical sign of WNS is wing necrosis. Gd may secrete proteases that degrade tissue, thus reducing wing strength and elasticity. We isolated Gd extracellular enzymes from an in vitro system and applied to wing tissue. The toughness, strength, and elasticity of tissues was assessed with tensile testing. Protease activity was assessed with SDS-PAGE and peptide mass fingerprinting by MALDI-TOF MS. Protein profiles by SDS-PAGE indicated higher solubilized protein in treated samples. Major bands were identified as integumentary proteins by MS. Tensile testing did not detect damage, but Gd may proteases may cleave host integument.

Faculty Mentor: Dr. Thomas Risch, Biological Sciences, trisch@astate.edu

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Mary Sues In Literature

"Mary Sue" is a relatively new literary term that has shown up in the last forty years in fanfiction. A Mary Sue is a character that is presented as perfect; many other characters simply bow down and praise her, and the characters are often avatars for the author. This project compares Mary Sues in contemporary fantasy, analyzing what makes and does not make a Mary Sue. Characters and works compared will be Bella from Twilight, Eragon from Eragon, and Vlad Taltos from Taltos. The aim of this project is simply to inform readers about Mary Sues and their characteristics and to make clear why writing such a character is not desirable. Since the term is relatively new and from popular culture, many scholars are not aware of the term, even though it is a useful term to describe many characters. By necessity, this project will also experiment with the use of sources that are not scholarly; fan-made wikis and forums will be among the sources.

Faculty Mentor: Dr. Cyndy Hendershot, English, chendershot@astate.edu

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Analysis of Feminine Constructs vs. Universal Codes in *The Tenant of Wildfell Hall*

The character foil between Millicent Hargrave and Annabella Lowborough is one of the devices that best works to illuminate the social constructs regarding femininity and the perceived roles of women. The biggest question then becomes whether Annabella's conduct, when contrasted with Millicent's, is portrayed negatively simply because she is breaking the social constructs regarding femininity or because she violates a universal code of morals. To answer this, the contrast between Millicent and Annabella must be clearly established. Millicent represents the typical societal construct of the "wife", while Annabella is the polar opposite, acting out of selfishness and malevolence. One then must determine whether any person acting as Annabella does would have been condemned just the same.

Faculty Mentor: Dr. Kate Krueger, English & Philosophy, kkrueger@astate.edu

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How Victorian Masculinity Prevents Character Growth in *The Tenant of Wildfell Hall*

One of the most prolific arguments surrounding Anne Bronte's The Tennant of Wildfell Hall is the classification of the protagonist, Gilbert Markham, as either a mature, selfless individual, or a narcissistic, volatile man who does not show significant growth as a character. This article examines this debate, and argues that Gilbert is a capricious, immature narrator who never fully understands the trials that Helen Huntingdon goes through. Gilbert's shortcoming alter the novel and create a happy ending out of what is another relationship with an egotistical husband for a selfless, faithful woman. This resolution highlights the flaws of the Victorian ideal of masculinity, in which a man must put himself first, and all others second.

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Gender Roles in Early Twentieth Century Ireland

Elizabeth Bowen's *The Last September* exhibits a heroine struggling with conventional gender roles in Ireland during the early 20th century. The novel explores the feminist movement in Ireland, providing an interesting perspective much different than the much studied Women's Suffrage movement of the United States. By analyzing the text and researching the background of the novel, I will establish notions of femininity and masculinity during the time period in this part of the world, and also compare and contrast them against those of the English culture. By understanding this novel, and comparing its notions to those of English writers and culture of the time, the reader can gain a higher understanding of feminism and its impacts on individuals and societies of this time period.

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Filling the Gap: Giving Readers Purpose with Science Fiction

This session will spotlight the work of two undergraduate middle level education teacher candidates who collected and presented strategic ways of relating science fiction young adult literature to an audience of teachers from across the state. They will display information about how science fiction creates a world where young adolescents can indulge in futuristic ideals, integrating them with current knowledge, personal opinions, and math/science/history content. Through science fiction, all teachers can help their students to compare and contrast the different areas, discuss, interpret, and analyze information related to young adolescents' areas of interest and reading development, embracing the originality and distinctiveness of this developmental period. Experience the science fiction genre and the associated methods they discovered.

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Monitoring Insect Pest Populations Across Variable Fields in Midsouth Cotton Through Management Zones Based on Soil Electrical Conductivity With and Without Wheat Cover Crop

This 2012 field study was to contrast infestation of cotton pests, tarnished plant bug (Lygus lineolaris, Palisot de Beauvouis), tobacco thrips (Frankliniella fusca (Hinds)), and western flower thrips (Frankliniella occidentalis (Pergande)), across spatially variable fields of cotton grown with a winter weed fallow and cereal winter cover crop. Paired commercial fields on three North East Arkansas farms were separated into four management zones based on soil electrical conductivity (EC) classified from measurements using a dual depth Veris® 3150 Soil Surveyor. Significantly fewer thrips were associated with cotton grown with a wheat cover crop. There was no apparent spatial component associated with thrips distribution in the six fields among management zones. The late season plant bugs numbers had no significant impact on yield.

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Understanding Spatial and Temporal Precipitation in Northeast Arkansas Using Voluntary Rain Gauge Network

The ultimate goal of the project is to provide basic climate input to researchers and outreach. All available data was utilized to find useful relationships between spatial and temporal rainfall trends with remote climate signals such as Southern Oscillation, to gain an understanding of rainfall variability as a movement toward drought predictability. Data collection was conducted by over 150 students over 12 different sub-areas in and around the city of Jonesboro. Accuracy was monitored as data was recorded at http://www.cocorahs.org. Observed spatial daily rainfall will help local students and the community to understand climate variability of the region.

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NCAA Minority Hiring Practices: African-American Head Coaches in NCAA Division I Institutions

Racism is a belief or doctrine that inherent differences among the various human races determine cultural or individual achievement, typically involving the idea that one's own race is superior and has the right to rule others. Racism has been around since the 1700s to present. Why has racism existed so long? Do we see racism in hiring practices in sports? This study surveyed the effects of racism (or lack of minority hiring of head coaches) in college sports. The purpose of this study was to survey the reasons why black coaches aren't hired as head coaches in Division I college sports. The focus was examining the leadership of those black head coaches if they were hired. The importance of this study is to make those who are hiring become more mindful that black coaches are qualified for all major head coaching positions in Division I college sports.

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Perceived Stress in Undergraduate Nursing Students

Nursing students report excessive stress accompanied by physical and psychological symptoms when compared to students in other disciplines. These symptoms have been linked to impaired learning and poor clinical performance. The purpose of this study was to gain knowledge about stress and coping in nursing students. This was a descriptive study utilizing the Perceived Stress Scale, emailed to 241 undergraduate nursing students. Demographic data were also collected along with two open-ended questions related to coping and stress reduction. Data analysis was conducted using both quantitative and qualitative methods. Information gained from this study may contribute valuable insight about strategies to decrease stress, as well as increase learning and performance in nursing school.

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Hitchhiking and the Road

Hitchhiking has been around far longer than the other two means of travel mentioned. Thumbing on the side of the road has been a means of travel since automobiles were put on the market and some people prefer it to traditional transportation modes. To get a broad view of hitchhiking in the modern world, it is beneficial to look at how it has changed over the last century, safety concerns of a woman hitching a ride, and hitchhiking in American literature that has helped shape how readers have felt about this way of travel.

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Look Like Women, Play Like Men

Using primary documents from The Baseball Hall of Fame and newspaper archives, this historical study explores the life and times of the All American Girls Baseball League. The study gives a true insight into the league itself, including the actual reason the league was started, and how these women and the league were represented in the media and within the league. In doing so, the study delves into not only how they were expected to play, but also the very strict regimen they had to follow on a daily basis. Some discussion of how the movie, A League of Their Own, represents the league is also included.

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The Impact of Honesty in *The Tenant of Wildfell Hall*

In Anne Bronte's *The Tenant of Wildfell Hall,* Helen exemplifies the failure of Victorian marriage ideals stemming from the often-conflicting societal demands placed on wives. She cannot be the positive spiritual influence on Arthur that she is expected to be, because she is also expected to repress her opinions and emotions and to temper any criticisms she might have of her husband's behavior. She cannot be open and honest with herself, to an extent, let alone her husband. Bronte further highlights the failure of the restrictive ideal through Helen's later relationship with Gilbert Markham. Free to be honest and forthright with both herself and with Gilbert, Helen becomes the kind of positive influence in his life that society had expected her to be in Arthur's.

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Applying the Exterior Matrix Method to the Inclined Cable Problem

We apply the exterior matrix method to find the approximate eigenfrequencies for serially connected inclined cables. The dynamics of each satisfies a system of four partial differential equations, but even their linearization cannot be solved in closed form. However, the exterior matrix method does not require the solution of governing equations. The eigenfrequency information is embedded in a 6 x 6 exterior matrix for each span, which are multiplied together to solve for the eigenfrequencies.

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Hardware-Aware Computing: Achieving High Performance Computing in Heterogeneous Systems

Hardware-aware computing is a newly proposed approach to computing that will be able to take advantage of a heterogeneous system by analyzing the different hardware components both locally and remotely available for use and dynamically reconfiguring the program to best take advantage of that hardware. Our ultimate goal with this approach is to determine the local and remote resources, break down the computations of the program that can be parallelized, and distribute the work load as evenly as possible across the system to maximize efficiency.

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Secondary Metabolite Enhancement in Hairy Root Cultures of Scutellaria Lateriflora by Treatment with Cyclodextrin and Methyl Jasmonate

Scutellaria lateriflora is a plant in the mint family which produces biologically active phenolics. These compounds exhibit antioxidant and anti-cancer properties. To create a bioproduction system for these compounds, hairy root cultures of S. lateriflora were developed using *Agrobacterium rhizogenes*. Root growth under light and dark were compared along with a variety of elicitation treatments. Three concentrations of cyclodextrin were compared alone and in combination with 100 uM methyl jasmonate (MeJA). Ethanol (solvent for MeJA) and MeJA were used as controls. After 24 hours, the media and root tissue were collected and extracted with methanol. The extracts were analyzed by HPLC. Differences in production of secondary metabolites were noted between various treatments and controls.

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Synthesis of CZTS with Applications to PV Cells

Much effort and attention has been directed toward renewable energy sources in recent decades. The most promising source is energy generated from solar cells. In the area of thin-film PV, much successful work has been done with CdTe and CIGS solar panels with efficiencies being >15%. These materials have some issues due to economic factors in the rare-earth market and the toxicity of some elements. Interest is now in other compounds using Earth-abundant materials. The compound of interest to us is CZTS. This has shown great success in efficiencies in recent years, the latest is 11%. We are exploring methods of synthesizing CZTS without using toxic or expensive materials. Most of our work so far has involved synthesis of CZTS in tetraethylene glycol.

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Automatic Control of Video Sources through RFID in Online Courses

One of the major issues in distance learning, on-line classes, and generally, in video conferencing is the automatic control of peripherals such as audio and video equipment. This is of prime importance when an array of video sources is commissioned, each focusing on a specific activity, such as in a laboratory environment. Manual switching of video sources is very time consuming, often ineffective, and interruptive. We demonstrate a model for controlling video sources automatically through RFID. This allows the professor and students move from one work-station to another during laboratory experimentation and automatically activate the correct cameras for showing experiments to remote students (through Skype, Webex or BB-Collaborate sessions).

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Mathematical Modeling for a Space Elevator

In this work, we use Timoshenko beam theory to model the contact of a space shuttle on a space station attached to a space elevator. The fully numerical schemes are considered based on a time discretization over the time space domain and the finite element method over the spatial domain. Non-increasing energy is shown mathematically and is supported numerically. A numerical example is provided to illustrate numerical stability, and through this example we are able to justify the accuracy of our numerical scheme. Existence of results will be verified in future work.

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The Acts of Cheating, Professional Fouls, and Gamesmanship in Sports

Sport, by definition, is physical activity governed by a set of rules or customs and often engaged in competitively (The Free Dictionary by Farlex, 2013). What draws people into the arena of sports? It should be the purity of the game that draws attention to sports. However, sports have drifted from their original nature into an event where those involved have a "win at all costs" mindset as discussed by Lee, Whitehead, and Ntoumanis (2007). In this paper, research will be presented on the concepts of cheating, "professional" fouls, and gamesmanship. We will examine Doyt and Lumpkin's (2010) research that suggests a "bracketed morality", in which athletes cheat, deceive, and bend the rules. We will delve into the ethical issues in the concepts of cheating, gamesmanship, and professional fouls.

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The Beat Generation

The Beat generation was a movement after World War II in which a group of people rebelled against the socially accepted lifestyles that were expected of them at the time. A group of authors, including Jack Kerouac, Allen Ginsberg, and William S. Burroughs, played a very large role in the development of the Beat movement. Their openness about religion, sexuality, and drug use spread through the nation with the help of their controversial works of literature. The Beat generation will always be remembered for their free, open nature and the incredible literature they used to express it.

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Trend Analysis of Temporal and Spatial Patterns of Human Elephant Conflict in Nepal

This study addresses spatial and temporal patterns of Human Elephant Conflict (HEC) in Nepal. Reports of HEC in Nepal indicate more frequent conflict occurring within the past 10 years. HEC inflicts economic and social costs because mitigation measures are inadequate and/or not data driven. In the past 10 years, HEC has caused 103 human deaths, 52 human injuries, 18 elephant deaths and 6 elephant injuries in Nepal. Moreover, 642 cases of property damage due to HEC have occurred. Data were analyzed using ANOVA and regression to investigate temporal and spatial patterns of conflict. HEC intensity varied significantly by location and month. Patterns of variation may guide management to focus resources at particular locations during specific months of the year.

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Arachidin-1: Bioproduction in Hairy Root Cultures of Peanut and Evaluation of its Neuroprotective Properties

Stilbenoids, polyphenolic compounds found in plants like peanuts and grapes, have a wide range of biological effects and potential benefits to human health. Among the peanut stilbenoids, arachidin-1 has shown higher antioxidant activity and potentially higher metabolic stability than other stilbenoids. To produce arachidin-1, we used hairy root cultures of peanut and treated them with a combination of elicitors and metabolic precursors. Ongoing studies are focused on the protective effects of arachidin-1 against oxidative stress in PC12-derived neurons. This work demonstrates the utility of the hairy root system to produce bioactive compounds relevant to human health.

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Cross-Cultural Perception of Common Colors

The intent of this study was to compare the ways that U.S. and foreign individuals perceive seven common colors. Seventy Arkansas State-Jonesboro students (approximately half were of international background) were surveyed on how they interpreted commonly used colors. The participants were presented with seven blocks of color and were asked to write the first thing that came to mind when viewing the color. Then they selected one of the seven basic emotions associated with each color. The results of quantitative and qualitative analyses of the data will be presented at the conference. This research may be used to advance our understanding of cross-cultural differences in color associations and to assist in choosing color palette to enhance attractiveness of the ASU campus.

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Doping Prevention in Elite Professional Sports

Because doping is becoming a greater problem in elite sports, anti-doping programs are receiving more attention. Current doping prevention programs that primarily involve pedagogical education for adolescents have been shown to be very effective. So far, however, the aspect of ethics has been neglected in anti-doping prevention programs. This presentation will discuss a new approach to doping prevention for young athletes, and a means of improving conventional doping prevention by focusing on the process of decision making (Marcus 2010). Ethical decision making programs based on those developed for business ethics training have great potential for application to doping prevention programs in sports.

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Sport Agency Boarding Schools: Ethicality, Legality and NCAA Compliance

IMG is the preeminent professional sports agency in the world. IMG also owns and operates a unique youth athlete training facility and academic boarding school: the IMG Academy. The academy is entirely populated by athletes, and provides financial aid and housing to amateur athletes. This study examines IMG's potential for ethical conflicts of interests, NCAA violations, and any legal ramifications related to IMG's operation of the IMG Academy. To examine the ethicality of the IMG's boarding school, this study compares similar athletically renowned boarding schools with the IMG Academy. Also, the Sports Agent Responsibility and Trust Act of 2004 (SPARTA) will be applied to financial aid and housing benefits to examine legality and NCAA compliance with agent-athlete relations.

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Developmental Play and Sensitivity to Nicotine

Dr. Biondolillo's laboratory has developed a voluntary model of nicotine self-administration in rats using drinking solutions. With these methods, we have begun to elucidate environmental and developmental factors that control initial and chronic nicotine consumption. We are collaborating with laboratories at Lethbridge University that have demonstrated consistent changes in brain morphology in response to acute exposure to nicotine. Our collaboration will evaluate the impact of play on rat sensitivity to nicotine, both in terms of neural response and voluntary consumption of nicotine.

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History and Culture of the American Road

The goal of this paper is to show a chronology of how the road, as an institution, evolved in the United States and what effects it had on American culture. The paper takes an era of American history, then shows how the road was being used and the effect it had on American culture. First a historical context is set, and then a particular aspect of culture that reflects the road is examined. American culture is shown from all angles, including literature, poetry, architecture, and music. The road has been essential in transportation across the United States' vast territory and, as a result, it is immortalized forever in the annals of American culture.

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Examining Mineral Variability with Infrared Spectroscopy

Lithic artifacts dominate the archaeological record and are often the only material recovered from archaeological sites dating over 2,500 years. Knowing the sources from which these lithic artifacts were originally procured is essential in addressing many questions related to prehistoric peoples, including those related to mobility and exchange patterns. This foundational work focuses on Fourier transform infrared spectroscopy as a geochemical method in sourcing formation sites of chert — a common lithic. This study examines Burlington chert from the Burlington-Keokuk formation, found primarily in Missouri, and "look-alike" chert from Crowley's Ridge. We seek to identify any inter- and intra-source mineral distinctions through variations found in the associated infrared absorption spectra.

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Synthesis and Characterization of Nanoporous Titanium Dioxide Membranes for Environmental Photocatalytic and Filtration Applications

Electrochemical anodization enhances surface area and photochemical properties of titanium dioxide (TiO2). TiO2 films are formed by anodizing titanium foil in tetraethylene or ethylene glycol paired with either ammonium sulfide or ammonium fluoride. Using spectroscopic reflectometry and scanning electron microscopy (SEM), the overall thickness of nanoporous walls, length of nanotubes, and an estimate of optoelectronic figures of reflectance can be determined. X-ray diffraction was used to measure and identify the crystallographic phase of our TiO2 samples. Nanostructured TiO2 is a promising compound in the realm of materials science, since there is a wide array of applications with a cost-effective process, and it may have a considerable impact on the horizon.

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The Effects of Suppression on Women Writers

In *A Room of One's Own,* Virginia Woolf questions the way in which women were suppressed during the 18th century. This paper focuses on on the debate about whether or not the suppression of woman in the 18th century affected their work in a negative way. Woolf mentions many different authors that wrote during this time period, and gives her own thoughts as to the effect the treatment of these women had on their works. I will focus on Jane Austen and look into her life as a woman and the way she wrote during a time of suppression, specifically paying attention to *Pride and Prejudice* and *Persuasion*. It is important to look at this aspect of the lives of women authors because suppression often played a large role in the formation of their pieces.

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Ethical Decision Making by Collegiate Coaches

Head coaches often receive criticism because few understand the information that must be taken into account before making a decision. Head coaches in collegiate athletics, especially in a team setting, rely on numerous factors in their decision making process and evaluate how it will affect their current and future career. The ultimate goal for most coaches is to win games, but do coaches sacrifice their values, ethics, or professional conduct? Without consistent wins, their jobs may be jeopardized, and their future careers affected. What is the most important thing to consider in their decision making process? Duffy & Passmore (2010) have created an ethical decision making model for coaches in the UK, but we modify and create a new model that can be applied to American collegiate coaches.

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Differential Scanning Calorimetric Analysis on Three Molten Salts for Renewable Power Plant Applications

With the need for renewable energy sources on the rise, many have pondered solutions and developed ways to possibly solve the problem. One possible solution to this predicament is the use of molten salts to energize power plants. Using the energy of salts to power energy plants, that in turn power our daily lives, embodies the law of conservation of energy. LiNO3, NaNO3, and KNO3 are the three salts used to conduct this experiment. A testing system called differential scanning calorimetry (DSC), was used to monitor heat and phase changes of the salts. Graphical data showing heat flow of the compounds with respect to temperature were created and the integral was computed to find the area under the curves that determined the latent heats for the salts.

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Gender in *The Tenant of Wildfell Hall*

The notion of gender plays a prominent yet ambiguous role in *The Tenant of Wildfell Hall.* What characteristics constitute masculinity and femininity? Are gender roles shaped by society? Gender in this novel can be examined through inherent biological differences, and social persepctives on femininity and masculinity. These unspoken "behavioral codes" are shaped and reinforced in the novel through the actions of the protagonist, Helen, with her struggle to comply with the genderized social norms, but still take a stance in what she believes will be the best for not only herself, but also her child.

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Electron Beam Vacuum Evaporation of Thin Films

We report research involving deposition of thin film materials through electron beam vacuum evaporation on a new MBraun system. These materials included indium (III) sulfide and copper indium disulfide as semiconductors for solar cell applications, indium tin oxide as a transparent conducting oxide, and various metals such as molybdenum and titanium as electrical contacts on the semiconductor layers. The presentation will discuss not only the applications of these layers, but also the practical problems associated with their uniform adherent deposition. It will also discuss creation of solar cells comprised of electron beam evaporated indium (III) sulfide onto which cadmium telluride is electrodeposited. This work was sponsored by National Science Foundation Grant EPS- 1003970.

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Properties and Construction of Generalized Minimum Aberration Designs

Regular fractional factorial designs are widely used experimental designs for studying effects of two or more variables simultaneously, but leave large gaps in run size. Non-regular fractional factorial designs can be constructed for every run size that is a multiple of four, which allows run size flexibility and economy. My research focuses on construction of optimal designs from Handmard Matrices of size 32 using graphic processing unit (GPU) technology, with a primary objective of providing, for the first time, comprehensive tables for the best 32 runs designs available. Creating design tables makes it possible for engineers and scientists to plan experiments for any number of variables less than 32 to be studied within 32 runs.

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The Untold Truth: Men are Beaten Too

This presentation examines the often ignored demographic of abused men and the U.S. resources available to male victims of domestic violence. Violence can happen to everyone, regardless of gender, race, or social standing. Goodyear-Smith and Laidlaw (1999) found that of 144 men who reported being victimized by female partners, only 14 of those considered the women's acts as "deliberately intended to harm". Male victims are reluctant to report victimization due to shame, stereotypes, and socialization. The Violence Against Women Act (2007), states that 5-7% of victims of reported domestic violence are men, though only 1% of federal funding is earmarked to assist male victims. Increased education and improved services are necessary to address the needs of male victims and improve domestic violence responses.

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Student Success and Motivation in Online Versus Traditional Lecture Classes

Sitting in a lecture hall is becoming a thing of the past for many college students. Online courses are becoming the norm in the educational realm. Knowing how online classes compare to the more rooted methods of teaching and the implications that coincide is substantially important for those in the field of education. Pedagogical approaches for traditional lecture classes and online courses are often on opposite ends of the spectrum. How do these affect student success? What factors or perceived notions draw students to enroll in an online class over the choice of a traditional lecture? This study takes a deeper look into why students choose to take an online course when they have the option to be in a traditional classroom and the overall success of each group of students.

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Engineering Hydroxyproline-O-Glycosylated Peptide Motifs in Hairy Roots for an Enhanced Bioproduction Platform

Hydroxyproline (Hyp)-O-glycosylated peptide motifs (HypGly-PMs) engineered in plant cells could excrete tagged proteins into culture media and stabilize the proteins. This research tested whether Hyp-O-glycosylation technology can be applied to an alternative production system for hairy roots. HypGly-PMs were engineered in tobacco hairy roots as fusion with a reporter protein, enhanced green fluorescence protein (EGFP). Significantly enhanced secretion of EGFP, >10-fold compared with control system, was observed. Another intriguing observation was recovery of two distinct glycoforms with the HypGly-PMs. They were completely segregated with the partially glycosylated form retained inside the roots, while the fully glycosylated form was recovered in the culture media.

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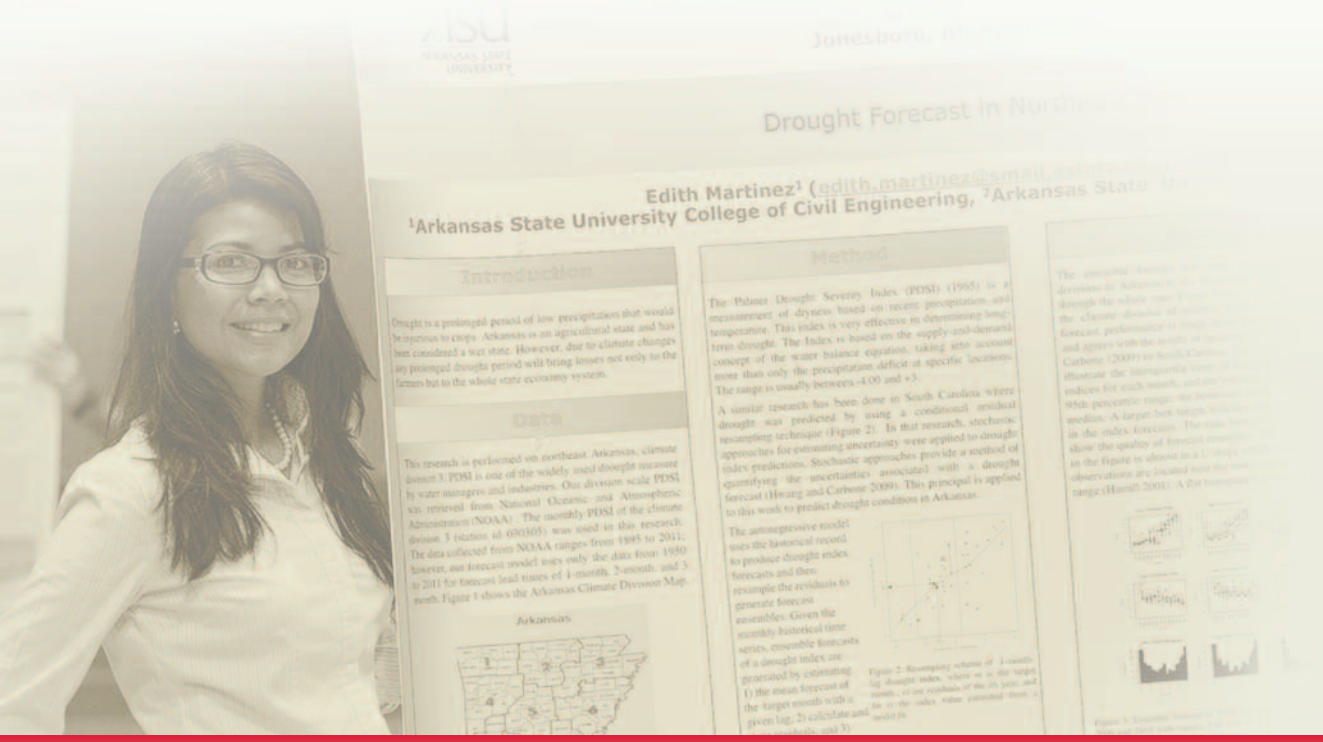
POSTER PRESENTATIONS

Listed in alphabetical order by lead presenter



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Do You Know Who You Are Dating?

Online dating has become increasingly popular among older and young adults. This cross sectional study examines how people ages 18-56 perceive the notion of dating someone that they met through an online dating site. Participants filled out a questionnaire based on their perceptions of online dating.

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More than Just a High: Medical Marijuana and the Terminally Ill

In 2012, Arkansas voters weighed in on the Arkansas Medical Marijuana Question, known as Issue 5, allowing terminally ill and people with debilitating or chronic diseases or conditions access to medical marijuana. It has been reported that 81% of respondents support the idea of legalizing marijuana for medical use, compared with 69% of those similarly surveyed in 1997. So far, 18 states and DC all have made medical marijuana legal to help treat debilitatingly ill people. With the failed passing of The Arkansas Medical Marijuana Act, Arkansans are being denied valuable health care and medical treatment.

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Do Patients 18 Years and Older in an Outpatient Primary Care Clinic Relate the Number of Prescriptions Received for Acute Illnesses to Patient Satisfaction?

The purpose of this research is to determine if patients with acute illnesses are satisfied with their care in relation to the number of prescriptions received. A convenience sample of patients seen for an acute illness at ARCare who are 18 years and older were asked to fill out the questionnaire. Patients stated their expectation of the visit. After being assessed by the provider, the patient then rated their satisfaction of the visit and state the number of prescriptions prescribed by the provider. Using SPSS, the satisfactory outcome of the office visit was compared to the number of prescriptions received by the patient. Age and gender were also used to compare patient satisfaction with their visit and with the number of prescriptions received.

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Are Adult Hospitalized Patients in the Memphis Area Prescribed Probiotics with a Diagnosis of Diarrhea or *C.difficile*?

Hospitalized adult patients are treated with antibiotics that have side effects that lead to diarrhea and/or clostridium difficilie (*C.difficile*). Diarrhea and *C.difficile* is a result of an alteration of the microbial balance within the gastrointestinal tract. Probiotics may help maintain normal gastrointestinal microbial flora and prevent diarrhea and *C.difficile*. The aim of this research is to determine if hospitalized adult patients were given probiotics with a diagnosis of diarrhea or *C.difficile*. A retrospective chart review of 100 medical records at a Memphis hospital was conducted using the ICD codes for diarrhea and *C.difficile*. Descriptive analysis will be performed using SPSS. The use of probiotics may reduce diarrhea and *C.difficile* in the hospitalized adult population in the Memphis area and decrease the length of hospital stay and cost of the hospitalization.

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Preliminary Data Collection Pertaining to Water Quality in an Agricultural Tailwater Recovery System

Agricultural reservoirs are beneficial to conserve water resources, especially in areas where groundwater levels are low. Combined with tailwater recovery ditches, farmers can drastically reduce the amount of groundwater that they have to use. Water quality measurements were made on a farm containing a reservoir with two tailwater recovery ditches bordering it to determine the nutrient levels in this system before agricultural activity had begun on it for the year. This information will be used throughout the year to compare the water quality as agricultural activity begins and ends in the area.

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Guatemala and Heifer International

Despite Guatemala having the most potential export resources in Central America, its population makes the lowest per capita income in the region. The standard of living between the rich and the poor is so polar opposite that it brings despair to the country. A measely 2% of the population controls 65% of the land. There are thousands of primary schools in the country, but they are mostly filled with students of wealthy families, and over half of elementary school-age children do not attend. We will analyze the ways in which Heifer International enables the people in this region through "passing on the gift" programs and education. Heifer seeks to improve impoverished nations through training in raising and properly caring for animals and basic education, as well as empowering women by equipping them with skills to better care for their families.

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Twitter in Higher Education: New Pedagogy in the Knowledge Era of Globalization

Twitter as a micro-blog in higher education has been considered a new pedagogical tool for social and academic communications among educators and students since its inception in 2006. Twitter provides space and opportunities for students and faculty to engage in social and academic activities as a new pedagogical tool. Despite a limited research on Twitter as a learning tool, a significant number of educators in the US, the UK, Australia and other parts of the world have used Twitter to interact with students, to share course information, and to collaborate research among educators. This article presents existing literature on Twitter, debates on the usage of Twitter in higher education, and the usage of Twitter in teaching and learning as a learning pedagogy.

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Some Wounds Don't Heal

Emotional abuse has lasting effects on children include self-esteem, self image, and social relationships. It diminishes a child's development. It is a silent epidemic. This presentation is intended to help you better understand the effects of emotional abuse on children.

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Grandparents raising Grandchildren in Rural Areas

The topic to be addressed is grandparents who raise their grandchildren in rural areas. The number of grandparents taking care of their grandchildren during the last few years has increased. Some, but not all the grandparents are retired and have worked for most of their lives. The challenges and issues presented will help people understand lifestyles of the children living at home with their grandparents. The experiences of these families will be described and analyzed. Differences between socio-economic status and ethnic backgrounds will be discussed. Statistical data will be provided to support our findings between past, present, and future projections, for what seems to be an epidemic in rural areas. The effects will include emotional, mental and physical stress. This paper will also include how this affects other members of the family, including children, parents and grandparents.

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Educating Adolescents About Dating Violence

This poster presentation is to educate teens about the risks of dating violence. According to the National Youth Risk Behavior Survey, 240,000 teens or 9.4% of students nationwide reported they had been hit, slapped, or physically hurt on purpose by a boyfriend or girlfriend in the twelve months prior to the survey (2012). What teens learn during adolescence forms the foundation for future adult relationships. We will explain warning signs of abuse in dating relationships, explore ways to improve safety within dating relationships, and offer guidelines to help when a friend is being abused.

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Tunisia - An Oasis in a Human Rights Desert

A study conducted by Freedom House in 2010 ranked Tunisia number one for supporting women's legal rights in the Arab World. Tunisia has guaranteed rights to women since it gained its independence from France in 1956. Women in Tunisia played a significant role in a revolution that took place in December 2010 through January 2011. This revolution led to leadership change in Tunisia and sparked the Arab Spring and widespread protests calling for increased human rights in many Arab Nations. This presentation investigates how countries like Tunisia, where women have access to education, have a higher overall standard of human rights.

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Effectiveness of Screening Mammogram Checklist in a Rural Health Clinic

Breast cancer is the 2nd most common form of cancer related death and is the 2nd most common form of cancer in women in the United States. Early detection and treatment of breast cancer helps to decrease the number of deaths and the number of cancer related complications. This study examined the current mammogram screening referrals for women over age 50 in one rural health clinic and the effects of adding into clinical practice a screening mammogram checklist on mammogram referrals. A pre and post implementation retrospective chart audit was performed and the results compared to evaluate if adding a screening mammogram checklist made a difference on the number of screening mammogram referrals.

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Protecting the Children

This presentation will address safety in schools and what we can do to increase safety. The National School Safety and Security Services aims to prevent and manage school violence, reduce safety risks and liability, and improve school community relations on school safety issues. Arkansas is currently looking to improve the safety of students. House Bill 1231, sponsored by Robert Thompson, aims to improve the security measures that are already in place.

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What's in Your Fiji Water?

This presentation explores Fiji's economic decline in export goods (such as clothing), tourism and sugar production and increase in poverty, unemployment, prostitution, violent crime rates (Alley, 200), and sharp rise of HIV cases with 449 overall reported cases as of November 2012 (Fiji Live, 2012). These conditions are correlated to the economic and political crisis Fiji experienced since 1987. Fiji's military has a dual and inconsistent role as "reactive" (against the government) or "transformative" (for the government) force (Ratuva, 2011). These situations enable human rights abuse, repression and denial of democracy throughout Fiji (Ratuva, 2011).

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Effects of Fructose and Exercise on Spatial Memory in Rats

Sugar is an important and controversial part of our western diet. Lately, there has been a spark in research related to its impact upon the brain. Perhaps most scrutinized is fructose, which is naturally found in many fruits but also added to many foods and drinks. Recent research has shown a negative cognitive performance associated with a high fructose diet. We set out to test the effectiveness of exercise in reversing these negative effects. Using a SURF grant, we were able to perform an experiment with rats using a 2 x 2 design involving a high fructose diet and exercise. The Barnes Maze was used to measure spatial memory and was administered five times before dietary change for the animals to learn the process and compared with the results after ten weeks on their respective diet.

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Design of a Portable Device to Quantify Rehabilitative Strength Gains

Rehabilitation therapists need a field device that will objectively quantify a patient's strength gains. This need is predicated upon third-party payers increased requirement for objective proof for rehabilitative outcomes. To meet this need, this researcher refined a prototypical device designed to measure the strength of patients enrolled in rehabilitative programs in the field. Specifically, the prototypical device was calibrated to external loads of known magnitudes and then used to record measurements from a population of healthy individuals. The ability of the device to record reliable measurements was subsequently assessed.

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Synthesis of Metallic Nano-Wires using Nanoporous Templates

One of the main structures created using nano-scale manufacturing is nanorods and nanowires which have applications in both of the above fields. We present the synthesis of high aspect-ratio nanowire using a nano-porosity template generated by anodized aluminum oxidation (AAO). Inside the nano-sized cylindrical porous template, metallic nanowires are synthesized and grown. After dissolving AAO templates, the high aspect ratio of nano-wires is obtained. Two of fabrication methodologies are introduced; sol-gel and electro-chemical deposition for particles of nanowires and free standing structure of nano-wires, respectively. Finally, we discuss some of the potential applications in the field of solar cell research and bio-sensing devices.

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Foot Sensation in Persons Newly Diagnosed with Diabetes as Compared to Persons Who Have Been Living with Diabetes

Diabetes peripheral neuropathy (DPN) is one of the most debilitating complications of diabetes (DM). In DPN, nerve damage can result in numbness and tingling in the feet. The purpose of this study was to determine if time since diagnosis of DM correlates with foot sensation. Volunteers with DM were tested for foot sensation. The results indicated that there was no correlation between time since diagnosis and sensation. Blood sugar control over time may be a bigger factor in foot sensation loss than simply how long a person has had DM. We will collect each subject's HgA1C report, which measures overall blood sugar control. We hypothesize that persons with HgA1C result in the normal range (below 7) will have better foot sensation than persons with HgA1C levels higher than 7.

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Inactivation of *Candida albicans* by 660nm Light

The objective of this study is to determine whether the growth of *Candida albicans* can be inactivated by 660-nm light. Research indicates that blue light can inactivate the growth of *S. auerus* in vitro. Whether visible light can similarly effect *Candida albicans* is not understood. Treatments of *Candida albicans* was ineffectively treated with blue light (405nm). Therefore, red light (660-nm) was delivered at doses of 3, 9, 15 and 30 J/cm2. Red light produced a significant ($p \leq 0.05$) inactivation of *Candida albicans*. 9 J/cm2 was the most effective dose, but 30 J/cm2 also effectively inhibited the organism. The conclusion is that 660-nm light inhibits the growth of *Candida albicans* in vitro. This research suggests a non-pharmaceutical approach to addressing *Candida albicans* colonization.

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Abuse Against the Elderly

Aging is a normal natural part of life; enduring abuse is not. Abuse is a single or repeated act or the lack of appropriate action that occurs with any relationship where there is a certain expectation of trust; this abuse causes harm or distress to an older person (Ginsberg, 2011).The Assistant Secretary for Aging at the U.S. Department of Health and Human Services' Administration on Aging emphasizes the imperative for everyone to help address and end elder abuse. There are a number of types of elder abuse and it is imperative that professionals who are working with the elders watch for signs of abuse. They can be physical, psychological or emotional, sexual abuse, neglect, and abandonment, denying one his or her civil rights, institution abuse as well as financial abuse (NASW, 1999).

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Fabrication of Nano-Island Structures using Surface-Energy-Driven Dewetting

In accordance with research funded through student undergraduate research fellowship (SURF), the fabrication of nano-sized structures using surface-energy-driven dewetting phenomena is to be presented. A sputtering process, under vacuum conditions, was used to deposit these nano-meter thick thin films while applied thermal energy provided adequate surface energy to break the films apart and generate an agglomeration of the particles. This was attributed to surface tension physics, and resulted in the generation of nano-islands, which were uniformly-sized and periodic-arrayed. This morphological evolution has extreme practical and scientific importance, especially in the research of solar cells, where it can be utilized to enhance the cells light absorption.

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Isoform-Specific Roles for Akt in the Invasiveness of Pancreatic Cancer

Pancreatic cancer has the worst prognosis among cancers with a 5-year survival rate at ~4% due to cancer metastasis. Developing biomarker/therapeutic target for controlling cancer metastasis is the key for improving the outcomes of treatment. Akt kinase is known to stimulate cell motility and cancer invasiveness, but opposing roles have also been shown for Akt isoforms. In pancreatic cancer, Akt2 is highly expressed, suggesting it may stimulate cancer metastasis. Using RNAi, we silenced Akt1 and Akt2 in PANC-1 cancer cells. We found that Akt1 and Akt2 indeed have opposing roles; while Akt2 knockdown reduced cell motility, Akt1 knockdown actually stimulated cell motility. Targeting Akt for cancer treatment is widely pursued; our findings may lead to isoform-specific targeting strategies.

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Acute Bronchitis and Treatment Guidelines

Acute bronchitis is one of the most common diagnoses made by the health care provider. The purpose of this study is to determine if antibiotics are being prescribed for patients with an ICD code of 466.0, acute bronchitis. A retrospective chart review is performed to determine if patients who have an ICD code of 466.0 were prescribed antibiotic therapy. Variables include provider status, age, gender, number of co-morbidities, and if antibiotics were or were not given. Data collection is incomplete at this time. Descriptive statistics will be utilized for data analysis. This study will increase awareness of providers of current treatment guidelines and decrease the potential of over prescribing and unnecessary use of antibiotics for ICD code of 466.0, acute bronchitis.

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Capacitometric Spectroscopy

Capacitance transient spectroscopy measures the defects in semiconductor devices. Current research is aimed at increasing the efficiency, safety, and cost reduction of all photovoltaics. Beta-indium(III) sulfide is a safer alternative to CdS and has a wide variety of applications in the field of optoelectronics due to its wider band gap and photoconductance. Cadmium telluride is one of the world's best thin film semiconductors. CZTS is a quarternary semiconductor composed of safe and inexpensive materials. Cu_2ZnSnS_4 was recently discovered and has been labelled as a semiconductor alternative to CIGS due to its similar structure and its composition of abundant earth-metals. We report DLTS findings of these interesting photovoltaic materials to identify deleterious defects.

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Extending the Medicaid Program to More Uninsured Arkansans Will Be Beneficial to the State as a Whole

Arkansas currently has one of the most restrictive Medicaid programs when compared with other states. Nearly 78% of uninsured families in Arkansas have at least one member working and 47% of these families have a member working full time. Extending the Medicaid program to these families and others whose annual income is just above the poverty level would benefit not only these families but the State as a whole. This presentation includes an in depth look at how this extension will benefit the State. Also included is a comparison study of Medicaid restrictions in Arkansas and other states in the nation. Finally, the presentation will include the results of the research and recommendations for advocacy on behalf of the uninsured population.

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Do Previously Deployed Soldiers in Northeast Arkansas Relate Increased Feelings of Hopelessness After Return from Afghanistan or Iraq?

Hopelessness is one of the nine primary symptoms of depression. The treatment for depression is primarily pharmacological but early screening for hopelessness could prevent pharmacological treatment using early counseling. Early intervention using counseling for signs of hopelessness could decrease depression diagnosis among soldiers. The research question is "Do previously deployed soldiers in Northeast Arkansas relate increased feelings of hopelessness after return from Afghanistan or Iraq?" The study employs a survey in order to complete the descriptive analysis. The results are pending data collection and a t-test will be used to determine if there is a significant difference between the surveys of soldiers that have been deployed to soldiers that have not been deployed.

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Long Term Oral Nicotine Exposure is Associated with Changes in Sera Cotinine and Uterine Histology but Not the Estrous Cycle in Female Rats

We examined long term voluntary intake of oral nicotine on the estrous cycle and uterine histology of female rats (n=20). The nicotine group (n=10) received 4 bottles of nicotine (30 µg/ml) and 2 bottles of water for 51 days; control group (n=10) received water only. Estrous cyclicity was monitored, and uterine tissues were examined by brightfield microscopy. Sera cotinine was measured by a competitive cotinine ELISA. No estrous disruptions were observed, however, nicotine exposed animals showed a significant decrease in uterine luminar epithelium height (p=0.01). Cotinine was found in serum within 48 hours of first nicotine exposure, but not after long term exposure. The initial presence and later absence of cotinine in serum may indicate an inhibition in the nicotine metabolic pathway.

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Patient's Level of Adherence to Newly Prescribed Medications

Prescription medications are a mainstay of the primary care setting with approximately 70% of the visits involving a newly prescribed or continued medication (Gadkari & McHorney, 2010). Non-adherence to prescription medications is a long term problem in healthcare. The objective of this study is to determine patient satisfaction with their provider's education of a newly prescribed medication. Descriptive analysis will be used to assess patient satisfaction of newly prescribed medications and if it potentially affects adherence. Data collection is ongoing and analysis is pending. The overarching goal and importance for healthcare of this study is to get primary care providers to supply adequate teaching to potentially enhance adherence.

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Assessment of Writing Across the Curriculum: Is Psychology a Writing Intensive Discipline According to University Trajectory?

Writing is an essential skill that students need to obtain before graduation and is one of the three university-wide goals at ASU. Our research group explored the question, "How many writing intensive classes are available in the core curriculum trajectory for psychology students?" Our concern as psychology students is to ensure that students are getting the writing practice they need in order to be successful with a psychology degree. We analyzed data both from a university-wide survey of courses and from course syllabi. We conclude that there are not enough writing intensive classes in psychology, and we provide recommendations for reform.

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The Role of Personality in Management

The presentation will include topics such as the Big Five personality traits, the different tools designed to measure personality and the results of each measure, social perception, and barriers that affect social perception. Each topic will be broken down and discussed more in depth to help explain how each contributes to personality. To help create a visual image, I will present theories, examples, personal experiences, and hypothetical situations to help the viewer gain a better understanding of what is being presented. I hope managers are able to get some helpful information on how to better understand their workers become more successful on the job.

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Effects of Handling Techniques on Stress in Female Adolescent Rats

Handling techniques are known to affect stress and performance in neonatal rats; however, little is known about the impact of different handling techniques on adolescent rats. Most behavioral investigations involving rats rely on animals that are adolescent or older. We evaluated the impact of two handling techniques, tickling (gently scratching the nape of the neck while supporting its body) and the standard tail pick-up (firmly but gently grasping the rat at the base of the tail) on performance in the elevated plus maze by adolescent rats. The data suggest that handling techniques affect rats during adolescence or in earlier developmental periods thus extending our knowledge of the impact of stress on rats serving as laboratory subjects in the neonatal and adolescent stage.

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Inactivation of *Mycobacterium smegmatis* following Exposure to 405-Nanometer Light from a Supraluminous Diode Array

The aim of this study was to determine the potential for blue light (405 nm) to produce a bactericidal effect on *Mycobacterium smegmatis*. We have studied the effect of blue light on *Staphylococcus aureus* and found a bactericidal outcome with low doses of blue light. The organism was treated in vitro with 405 nm light emitted from a supraluminous diode (SLD) array. Doses of 60, 90, 120, 150, 180, 215 and 250 J/cm2 were used. Colony counts were performed and compared to untreated controls. The results revealed statistically significant bactericidal effects of the blue light on *M. smegmatis*. The treatment reduced the number of bacteria colonies at all doses with 120, 150 and 215 J/cm2 demonstrating kill rates of 98.3, 96.7 and 100% respectively.

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Do Providers Use CMS Guidelines to Prevent Hospital Readmission?

The purpose of this study is to explore the number of hospital readmissions following noncompliance of Centers for Medicare & Medicaid Services (CMS) guidelines by providers. This study was conducted at a local hospital with bed capacity of 156, by using a retrospective chart review to gather a baseline of hospital readmissions. Charts reviewed assessed if discharges were done using CMS guidelines; ensuring patients were financially able to obtain medication, patient actually received their medication, and follow up doctor visits were completed. These interventions aim to decrease the number of hospital readmissions. The data collected suggest that CMS guidelines are not being followed by some providers. Therefore, it caused an increase in the number of hospital readmissions during the reviewed time period. If CMS guidelines are utilized it will decrease the number of hospital readmissions.

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Detection of Shiga Toxin-producing *E. coli* Prevalence in Beef Battle of North East-Arkansas Using Cultural Methods

Shigatoxin-producing *Escherichia coli* (STEC) cause human illnesses ranging from mild diarrhea to life-threatening hemolytic uremia syndrome. Because beef cattle are the main sources of STEC, the prevalence of STEC in northeast Arkansas farms was studied. Samples (rectal swabs, feed, soil, and water) were collected from 13 farms. STEC strains were identified using cultural methods involving enrichment, and plating on the selective media CT-SMAC and CT-Rainbow agar O157. Isolate identities were confirmed by biochemical and agglutination tests. Of the samples analyzed from 13 farms, 51 % contained non-O157 STEC, 40.8 % did not contain any type of STEC, and 10 % contained O157 STEC. Samples positive for STEC were obtained from all 13 farms showing that STEC are common in northeast Arkansas.

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Integrating Soil, Crop and Pest Monitoring Using Spatial Technology on Arkansas Cotton Farms to Achieve Nutrient Loss Reduction

The overall goal of this project is to improve the economy and environment in the lower Mississippi River basin by providing an education and technology assistance program to cotton producers and their advisors that encourage expanded adoption of nutrients management practices that enable them to improve fertilizer use efficiency and reduce nutrient losses from their land. Increasing production efficiency while protecting the environment— both are required to make positive progress on the journey toward a more sustainable cotton system.

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Domestic Violence: Rural American Perspective

This presentation explores how victims of domestic violence may experience barriers unique to the rural setting when attempting to obtain assistance from law enforcement, the courts, and even other community members. Approximately 25% of United States citizens live in areas deemed to be rural. Common barriers rural residents encounter are: geographic isolation, officials' biases in handling of the case or report, limited resources or professionals with a good knowledge base of domestic violence issues, and possibly domestic violence acts accepted as a social norm.

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Russia: Mail Order Bride Industry

This presentation explores the mail bride industry in Russia. Governed by the Soviet Union for seven decades, Russia is the 9th largest population in our world with 142,517, 670 people. Adults aged 25 to 54 represent 45% of their population (CIA, July, 2012). Russia is the world leader in oil production (CIA, 2013). The country has a 99% literacy rate for individuals 15 and older (CIA, 2013). Russia remains weak in fighting their problem of human trafficking (CIA, 2013). These factors contribute to why individuals of all ages are subjected to prostitution and forced begging in the larger Russian cities (CIA, 2008). These economic conditions have contributed to a rise in the mail order bride industry leaving women vulnerable for exploitation.

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Assessment of the Co-Curricular Research: ASU=e^3+r

Arkansas State believes that research is a valuable co-curricular. ASU's mission statement is to educate leaders, enhance intellectual growth, and enrich lives. We investigated ways in which research experience contributes to these goals. We created an NSF-inspired survey to determine the effectiveness of the University's research opportunities. Survey results present a student's viewpoint on the benefits and shortcomings of undergraduate and graduate research. We present the extent to which ASU is moving toward its goal of becoming a research-intensive university.

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Sexual Abuse

The purpose of this project is to raise awareness about victims of sexual abuse. More than five children die every day as a result of child abuse (United States Government Accountability Office, Child Maltreatment, 2011). We examine several different factors including long term effects of victimization occurring at different ages across the lifespan, comparison of male and female victimization patterns, educational needs required to recognize and to abuse victims and prevention of sexual abuse. Our project will be useful in developing prevention awareness in schools and in communities.

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Field Validation of Irrigation Planning Tools in Major Arkansas Row Crops

Arkansas ranks fourth amongst U.S. states with irrigated acreage and second for water applied. Currently groundwater is being used at an unsustainable rate in the state. With production costs rising and variability in weather, irrigation management will play a key role to solving the irrigation problems that are currently being faced. Pipe Planner, a furrow irrigation planning tool, will be tested to verify the accuracy and variability of water distribution in a field setting. Three soybean and cotton fields were chosen for the study. Soil moisture sensors with data loggers will be placed in the fields to monitor the advancement of water through the furrows. The data collected from the sensors will be analyzed to verify the accuracy of Pipe Planner.

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Social Media - Good or Bad?

Social media sites are becoming more incorporated into our society every day. From MySpace to Instagram, any given day, a new social media site could rise up from nowhere and become a new trend. For this reason, it is important for people to know why these sites are becoming more commonly used by most individuals. Recent studies have looked at the relationship between social media and an individual's psychological well-being. A review of some of the recent literature in this area reveals that the use of social media sites may have an effect on a person's well-being. The findings of these studies may open up the doors to more in-depth studies of social media effects on humans. The result of this literature review will provide guidance on areas of future research concerning this topic.

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Passing on the Gift: Heifer International and ASU

The problem of poverty and hunger in the lives of Tibetan nomads will be researched. We will draw from our experiences in studying the issue at the Heifer International Ranch in Perryville, Arkansas. Our poster will explain the unique challenges of the nomads. We will also offer suggestions about how to alleviate these problems through gifts of livestock and training in animal care and management. These gifts aid in the development of their society. We will discuss the ideas and solutions that will allow these people to become more self-sufficient. We will conclude with an analysis to help us understand the universal qualities of the human condition, despite these radical differences in our living conditions.

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Effects on Intake Patterns and Estrous Cycling During Exposure to a High Concentration of Oral Nicotine by the Multiple Bottle Approach

To better understand long term voluntary consumption of oral nicotine and its effects on the estrous cycle, we employed a multiple bottle method on female rats. This approach predicts that fluids are consumed proportional to their availability. Water was delivered in 6 bottles for baseline. Following this, the experimental group was presented with 4 bottles of nicotine (30 µg/ml) and 2 bottles of water for 20 days. Estrous cycles remained normal throughout the study. Subjects consistently gave primary preference to bottles without nicotine and secondary preference to bottles on the right side of the cage. The aversive effects of the oral nicotine at this concentration were sufficient to override the multiple bottle effect. The nicotine consumed had no observable effect on estrous cycling.

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Teen Pregnancy in Rural Areas

We will gain insight into the perceptions and attitudes about teen pregnancy among people in a rural area with high teen pregnancy rates. Teenage pregnancy has become a major policy issue, for which young people are often publicly held solely responsible. However, a combination of factors substantially increases the risks of conception faced by young people engaging in early sexual activity. To reduce teen pregnancy, the developmental asset model offers community members, teachers and parents guidelines to work together to develop key assets in youth that may protect against risky sexual behaviors.

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Evidence of Resistance Development by *Staphylococcus aureus* to an In-Vitro, Multiple Stage Application of 405- Nanometer Light from a Supraluminous Diode Array

The aim of this study was to determine whether *Staphylococcus aureus* could develop a resistance to 405-nm light. Research indicates that certain wavelengths and treatment parameters of light promote growth of bacteria, but our earlier work indicated that blue light effectively inactivates growth of *S. aureus* in vitro. *S. aureus* was tested because of its frequent isolation from skin infections and wounds. The organism was treated with 405-nm light from supraluminous diodes at a dose of 9 J/cm2. As anticipated, blue light produced a significant ($p \leq 0.05$) inactivation of *S. aureus* growth. Subsequent applications of blue light to subcultured generations of *S. aureus* were increasingly effective through four stages (generations). Beginning with stage five a decrease in effectiveness (resistance) was observed. Appropriate doses of 405-nm blue light inhibit the growth of *S. aureus* in vitro. This research does suggest that *S. aureus* may be capable of developing resistance to blue light irradiation.

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The Efficacy of Lifestyle Modification in the Treatment of Osteoporosis Versus Bisphosphonate Therapy

Osteoporosis, also known as porous bone, is the most common bone disease that affects millions of Americans each year. Osteoporosis is a very serious health concern because of the increased risk for fractures that often results in an increased morbidity and mortality rates in patients. Treatment options include lifestyle modifications such as exercise, diet, or medications such as bisphosphonate. The purpose of this study is to evaluate patients from 20-99 years, male and female, who have a documented diagnosis of osteoporosis to observe if the current treatment plan is effective. Using random selection, a retrospective chart review of 20 patients will be conducted in a rural, southeast Missouri primary care clinic. Data collection is on-going and analysis of this project is pending.

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A Comparison of Worksite Wellness Incentive Programs in Terms of Exercise Adherence

In worksite wellness programs, incentive-based exercise programs are often used to maintain existing employee motivation while also attracting new participants. Two common approaches to incentive program design are a) pedometer-based walking programs and b) group exercise class attendance-based programs. The purpose of this study will be to determine which approach is most effective in increasing exercise participation in employees. Participants will be assigned to either a pedometer group who will report weekly step counts or an exercise group whose class attendance will be recorded. Participation and dropout rates will be examined as well as qualitative survey data. Results from this study could play an important role in the design and effectiveness of future incentive programs.

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Who Wants to be a Physical Therapist Asistant?

The purpose of this study was to identify changes in the typical applicant for the physical therapist assistant program from 2003 to present. The applicant pool increased from 17 to 111. Demographic data was used to identify variance and trends in applicants. Gender, race, age, prerequisite GPA, cumulative GPA and whether or not an applicant already held a degree was used. In 2003, 18% of applicants were male, 29% already held a degree, 6% were a race other than Caucasian, mean prerequisite GPA was 2.78 and mean cumulative GPA was 2.93. In 2012, 31% of applicants were male, 52% already held a degree, 12% were a race other than Caucasian, mean prerequisite GPA was 3.61, and mean cumulative GPA was 3.46. Age, gender, GPA, and previous degree have increased while race has varied.

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No Child Left Behind

In 2001, Congress passed the No Child Left Behind law, an amendment to the Elementary and Secondary Education Act of 1965. There was, at the time, a push towards accountability in the educational system. President George W. Bush made education reform one of his key issues while running for the Presidency, and as the newly inaugurated President, made good on his promise. No Child Left Behind was a step in the right direction for the Nations educational system. Now, twelve years later, President Obama shifts the requirement that every student pass state tests by the 2013-2014 school year to implementing waivers that allows states to draft their own plans to improve the performance of struggling students. States have the opportunity to set higher standards in exchange for more flexibility.

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Money Invested in Transportation Can Drive Poverty Away

Rural America is suffering from poverty. Improvements can be made if transportation becomes the focus. Weber (2008) states the availability of transportation is a key difference between rural and urban women receiving welfare benefits. States should be required to set aside an allotment of money which the federal government would match in order to provide public transportation for rural communities. The money would be used to purchase the mode of transportation, fuel and employees. Weber (2008) also reports that a subsidized vehicle program in Vermont was found to increase the probability of employment by 19% and raise earned income on average $127 per month for participants. Advancements in education, poverty, employment and healthcare availability would occur afterward.

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Analysis of Seated Force Distribution Patterns in Hippotherapy Patients

The purpose of this study is to analyze the changes in force distribution patterns of patients who are seated on a horse and participating in hippotherapy. Hippotherapy is a treatment modality used by physical therapists to improve postural control. Patients with postural control deficits ride atop a horse during hippotherapy and are provided with therapist directed activities designed to challenge and improve postural control deficits. Proponents maintain that hippotherapy mimics the postural challenges encountered while walking. Moreover, research suggests that postural control training during hippotherapy is optimized because of the rhythmic and repetitive sensory input provided by the horse. Little published data exists on the ways to measure or maximize the effects of hippotherapy.

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Innovations in Semiconductor Electrodeposition

We will report on recent research on electrodeposition of films of the compound semiconductors indium (III) sulfide, cadmium telluride, and copper indium disulfide through use of novel methodologies involving, for example, Taguchi statistical analysis of film properties, and the quasi-rest potential, as feedback for optimizing deposition parameters and film quality, and semi-solid gelatinous electrolytes to improve film morphology. These materials have potential for use in solar cells. This work is jointly funded through EPSCoR grants from the National Science Foundation and NASA, and coordinated through the Arkansas "Vertically Integrated Center for Transformative Energy Research" (VICTER), the Arkansas Science and Technology Authority, and the NASA/AR Space Grant Consortium.

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Bioproduction of stilbenoids in hairy root cultures of muscadine grape (Vitis rotundifolia Michx.)

Stilbenoids are polyphenolic phytoalexins with health-related properties in humans. Muscadine grape (Vitis rotundifolia) hairy root cultures were established via Agrobacterium rhizogenes-mediated transformation, and the effects of growth regulators (3-indolebutyric acid and 6-benzylaminopurine) and methyl jasmonate (MeJA) on stilbenoid production were studied. Twenty-one-day old hairy root cultures were treated with 100 uM MeJA for 24 hours. Stilbenoids were extracted from the medium and tissue with ethyl acetate and analyzed by HPLC. Resveratrol, piceid, and viniferin were observed preferentially in tissue whereas piceatannol only in medium. Growth regulators did not affect the yield of stilbenoids whereas higher levels were found upon treatment with MeJA. These hairy root cultures demonstrated to be amenable systems to study stilbenoid biosynthesis and a sustainable source of these bioactive compounds.

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Force Dissipating Effects of Properly and Improperly Worn Concussion Helmets

Concussion helmets are designed to limit the transmission of forces to a football player's head during high impact plays and, in turn, to limit neurological injury; yet the ability of a concussion helmet to function properly may be compromised in situations where the helmet is not fitting appropriately. Unfortunately, many adolescent football players report that they alter helmet fit to increase comfort during game play, possibly altering the helmets force distributing capabilities. The purpose of this study is to analyze the transmission of forces to instrumented plaster-of-paris head molds that are encased in properly and improperly fitting concussion helmets. Long-term, the results of this study may be used to educate players and coaches about the necessity of properly fitting helmets

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Telling Victoria's Secrets: The Cost Beyond the Price Tag

This presentation explores current garment industry conditions in Sri Lanka. International Boycott Day was held in December 2012 as a protest to the living conditions of Tamil civilians (BBC News, 2012). Sri Lanka's largest export of clothing is to the United States, totaling 732 million in woven apparel and 696 million in knit apparel in 2011. Manufacturing clothing in cheap wage labor promotes the pattern of economic interdependence between Sri Lanka and the United States. Living conditions such as no elctricity, no healthy water supply and lack of food contribute to the violation of human rights in Sri Lanka as they manufacture some of the United States most popular clothing lines, such as Victoria's Secret, Tommy Hifilger and Aeropostale.

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Plant-based Fish Protein Production as an Alternative Antimicrobial Therapeutic Strategy for Aquaculture

Aquaculture is rapidly growing as the need for high quality protein in diets increase and natural wild caught populations decline. High density growing conditions in aquaculture lead to a rapid spread of fish disease causing major economic loss for farmers as well as health concerns for consumers. Effective and environmentally safe fish therapeutics in countering disease outbreak are needed. Using a well-established plant-based protein production system we targeted the expression of an interleukin-22 (IL-22) protein. IL-22 triggers antimicrobial peptide production in mammals and may provide a safe, selective way to boost fish immunity and disease survival. Data will be presented that characterizes expression levels and production stability of both a cold- and warm-water fish IL-22 protein.

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Assessment of High DFW Courses: General Chemistry I Focus Groups

Federal mandates for increased access to college, decreased time to degree completion, and evidence for student learning are demanding reform of courses that report high rates of the grades DFW. General Chemistry I recently introduced recitations to assist high risk students. We facilitated focus groups to determine the effectiveness of the intervention, both at the affective and academic levels. Results and recommendations are provided.

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Psychological Abuse: Ending the Cycle

This presentation focuses on the issue of psychological abuse. "At times when psychological abuse is high, quality of life and ability to obtain resources are low" (Beeble, Bybee, & Sullivan, 2010). Psychological abuse is a variable of Intimate Partner Violence and used with the intent to cause mental and emotional harm. The victims of this type of abuse vary by gender and age. The purpose of this presentation is to provide an in-depth explanation of aggressive abuse tactics and implications for recovery. This presentation concludes by examining survival therapy.

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Assessment: Benchmarking ASU

Is ASU a good University? How would we know? The best colleges in the nation pride themselves on effective student recruitment. We found that some of the top universities use benchmarking to advertise the notable aspects of their campuses to the public. Benchmarking is defined as evaluating by comparison with a standard. Arkansas State University does not promulgate its objective and relative standing to other research-oriented universities. We discuss how Arkansas State can use the capabilities of benchmarking to compare itself to schools in and above their classification, using the Carnegie Classification.

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¿Que Deseas? A Positive Psychology Perspective on Mate Preferences of Latin Americans

Previous studies on mate preferences by our colleagues have examined desired qualities from evolutionary and positive psychology perspectives. Such research was conducted in several countries, including Japan, Russia, Turkey, Germany, and the United States. However, there is a lack of data from the Latino population. We plan to administer a survey asking students in Latin America to rank the traits they find most desirable in a long-term romantic partner. Based on previous results, we expect to find traits and virtues such as dependability, love, kindness, gratefulness, and cooperation to be among the highest ranked. If these predictions hold, then results will strengthen the case for positive internal states being the most preferred characteristics of a long-term mate universally.

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The Impact of Developmental Play on Voluntary Nicotine Intake in Female Rats

The impact of developmental play on voluntary nicotine intake in adulthood was examined in rats. Young female rats were assigned to either a high or low play group. Rats from each play condition were then assigned to receive a daily regimen of either saline or nicotine injections. Finally, rats were separated and given access to water and nicotine drinking solutions. Intake data revealed an interesting interaction between housing condition and type of injection with rats exposed to high levels of play and acute injections of nicotine demonstrating a clear, but transient willingness to consume nicotine voluntarily in a drinking solution.

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Water Quality Sampling in Arkansas Edge of Field Monitoring: Sensors, Configuration and Design

One major source of water impairment is from non-point source pollution, such as runoff from agricultural production fields. Data collection from runoff from agricultural production fields in northeastern Arkansas are being conducted by the USDA-Agricultural Research Service and Arkansas State University with support from USDA-National Resources Conservation Service via the Mississippi Healthy River Basin Initiatives (MRBI). The MRBI program is a voluntary program for producers and offers financial assistance to those who put conservation practices into place. The study sites will be described in detail and initial data analysis will be presented.

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All Four Biosynthetic Pathways Leading to Vitamin C Formation are Active in Tomato

Vitamin C (AsA) is a key antioxidant and enzyme cofactor in plants. Four different pathways lead to the formation of AsA in plants, and they use L-galactose, L-gulose, D-galacturonate and myo-inositol as precursors. Here, leaves,flowers and tomato fruits have been fed with 10 mM solutions of some of these AsA precursors for 16 h under constant light and temperature conditions. In young leaves and flowers, all four pathways are operational with the most preferred substrates being L-galactose, L-gulose, and L-gulono-1,4-lactone, while in older leaves the L-galactose pathway seems to be the predominant one. Interestingly in fruits D-galacturonate is the preferred substrate followed by L-gulose. These findings demonstrate the shift between AsA source depending upon the age and tissue of the plant.

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Bridging the Digital Divide

The goal of this community service project at CityYouth Ministries is to develop a program to deliver managed access to online resources for three constituencies: elementary students, high school students, program alumni. The process of developing a proposal includes identifying resources, interviewing agency staff, and evaluating options. The desired plan will describe a computer lab that is sustainable and meets the needs of the user groups. The lab will be used for homework, recreational purposes, practice tests, and completing job applications. Sustainability is an issue given the limitations of a non-profit agency that relies on donations, grants, and volunteers to provide services to the community.

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Impact of Social Support On Pregnancy Outcomes

Many women in the United States experience pregnancies under precarious personal situations with little or no social support. This can negatively affect the care they receive during this time. Healthcare providers need to be aware of this lack of social support to ensure that these women have the type of support that they need and provide adequate care to meet these women's needs. In this study, women ages 18-45 received questionnaires inquiring about their circumstances during a previous pregnancy, access to healthcare, type of support (if any) they received, and what support would have worked best for them. The analyzed results will be available for clinicians to seek out support opportunities for these women, with the goal of ensuring quality care and support during pregnancy.

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Trip to Jamaica?

The Jamaica portrayed as an ideal tourist destination is in sharp contrast to the reality of the illegal drug trade, high unemployment rates and the alarming rate of poverty in Jamaica. According to the International Monetary Fund (2010) 16.5% of Jamaica's population lives in poverty. With a population of approximately 2.7 million people, this means that 1.1 million Jamaicans make less than US$2.50 per day (IMF, 2010). This high rate of poverty is correlated to an increase in illegal drug trade and violent crimes contributing to Jamaica having one of the highest per capita homicide rates in the world (U.S. Dept of State, 2012).

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Heifer International: Thailand

Our team will educate the public on how Heifer International works to alleviate poverty and provide programming to spur self-sufficiency and economic independence in Thailand. Our poster will provide information on the cultural and economic aspects of Thailand, as well as how programs like Heifer International can help places such as Thailand grow in economic freedom and personal liberation. Furthermore, we will show how Heifer International Thailand, pairing with local, national, and international organizations, has used the gift of livestock and training to end hunger and poverty in 27,000 families from more than 2,000 villages in Thailand, by families sharing offspring or repaying a loan which is then given to other families.

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Heifer's Impact on Haiti

Our team of three in Honors World Literature plans to present a poster to educate about the struggles in Haiti and Heifer International's effort to provide a sustainable economy. Our poster will look specifically at where Haiti is located, the disasters it has faced, and how Heifer is helping by providing gifts of livestock and educational training. The cultural, historical, and economic challenges that Haiti faced before and after the earthquake will be discussed. We will draw from our experiences from staying at the Global Village located at the Heifer International Ranch in Perryville, Arkansas. Our goal is that, by the end of our presentation, that our audience will better understand the culture, challenges of Haiti, and an analysis of how literature furthers this understanding.

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Mining Senior Exit Survey Data: Major Themes and Suggestions for Change

ASU's senior exit survey administered to seniors aims to evaluate students' experiences at the university. Students reflect upon competencies obtained, satisfaction with their degree programs, future plans, activity participation and overall impressions of the college experience. Although the major goal of the survey is to provide feedback that will be of interest to Arkansas State University's stakeholders, low response rates to the survey have jeopardized the validity of findings. We present changes that we have made in the administration of the survey in order to improve the response rate and results obtained via the revised administrative procedure.

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The Great Escape

This presentation explores the dangers, preparation, and resources available in preparing to leave a violent relationship. According to the Centers for Disease Control (2011) on average, 124 American women per minute are victims of rape, physical violence, or stalking by an intimate partner and 1.3 million women each year are physically assaulted by their partner (Family Violence Statistics, 2011). Each day in the U.S., more than 3 women are murdered by their husbands or boyfriends (Family Violence Prevention Fund, 2010). This prevalence demands widespread education about domestic violence.

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A Solution to Poverty: Heifer International

Our group will describe Heifer International as an organization committed to fighting poverty. We would like to shed a light on the many amazing things this organization has accomplished, as well as delve into future projects they have planned. We will conduct interviews of Heifer officials and present their plans and ideals.

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Incidence of Human Papillomavirus Diagnosis in Patients Who Have Diagnosis of Throat Cancer

Human papillomavirus (HPV) is common sexually transmitted viral infection that affects more than 50% sexually active individuals. There are 7,000 cases in America that is expected to double in 5 to 10 years. Fifteen types of HPV have the highest level of carcinogenic influence including HPV 16, 18, 31 and 45. Studies show the connection between HPV and throat cancer. Tobacco, alcohol and sexual behaviors could increase the risk of throat squamous cell carcinomas. A study in a hospital base case control proved HPV16 is the most prevalent in every area of the throat. Oral cancer has been found to be prevalent in young white males and non-smokers. Retrospective data study patient's ages range 18 to 65 to determine the geno type and if the patients were vaccinated Gardasil. Data collection is ongoing and final analysis is pending.

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Leadership in the Workplace

Leading is one of the most influential and important tasks for today's managers. In order to clearly understand how to lead in a workplace, one must understand what methods of leadership work best. In my study, I will attempt to discover which leadership theories are most effective. In order to find the best leadership technique or theory I will gather and compare research from a variety of sources that explain in detail multiple leadership theories and their effectiveness. I will identify which leadership theories are most practical for using in a working environment and explain the strengths and weaknesses of each method in office, retail, and outdoor environments.

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Poverty in Our Backyard: Heifer International and ASU

We recently traveled to Heifer International Ranch in Perryville, Arkansas, as part of our Honors World Literature class, to gain personal insight on poverty and hunger in regions throughout the world. Our poster will showcase the tribulations faced by those living in Appalachia. Through this experience, we learned that this region is economically unstable and lacks the resources to keep up with the modern day society surrounding them. Heifer International works with citizens of Appalachia to enhance their standard of living through livestock and educational training. The latest Heifer-Appalachia project consists of improving the food economy in the area. In conclusion, we will analyze the way in which literature helps us relate to those living in different cultures and conditions.

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Immigration Reform and Higher Education

Immigration Reform in rural communities is a complex and vastly debated issue. Many bills and proposals have been introduced into Arkansas legislature, for instance Joyce Elliot has made previous attempts to pass a bill involving in-state tuition for immigrants. Many federal rulings involving immigration are not seriously imposed, much less enforced by the state level. In Arkansas many illegal immigrants obtain high school diplomas or GED's while in the United States. In order to advocate for the oppressed population, we propose a new idea to permit illegal residents of Arkansas who have obtained a high-school diploma or GED to attend an in-state college at in-state rates, with the stipulation that they devote their college career to an area of sciences, such as technology, engineering, or any health profession.

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What are the Barriers to Educating Adult Patients in Northeast Arkansas with a BMI Greater than 25 on Health Complications Associated with Obesity?

A large percentage of adult populations in industrialized nations are obese. In the United States, 2 out of 3 adults are overweight or obese. Obesity is a major risk factor in many chronic diseases; therefore, it is imperative that patients are identified and educated. The purpose of this study is to identify the barriers associated with education of obese adults in primary care. A questionnaire will be provided to 50 patients with an elevated BMI that present to a rural Northeast Arkansas clinic. Descriptive statistics will be completed using the results from questionnaires to determine potential barriers to education. This study will aid the healthcare provider by helping them understand the importance of obesity education and avoiding barriers to education.

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A Zone Management Approach to Tarnished Plant Bug (Lygus lineolaris) Control Termination in Cotton

Midsouth cotton producers are expanding use of spatial technology for insect management to improve crop production efficiency. They also use COTMAN crop termination guides to save money by elimination insecticide applications in crop areas to protect mature bolls that are no longer susceptible to feeding damage. In 2012, a replicated field experiment was conducted to compare a precision insecticide application to a standard broadcast application to control the insect pest, *Lygus lineolaris*. No differences in lint yield were observed if insect control was terminated according to COTMAN guidelines. There was no yield penalty associated with eliminating the final insecticide application. Insecticide costs were reduced 14% with the zone approach compared to a broadcast application.

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Metabolic Engineering Approach to Increase the Level of Anticancer Flavonoids in *Scutellaria Lateriflora* Hairy Roots

Scutellaria lateriflora, a perennial herb native to America, is rich in specialized metabolites that have shown various biological activities. In particular, the flavonoids wogonin, baicalein and baicalin have proven anticancer properties in vitro. The regulatory mechanisms and biosynthetic steps leading to these specialized metabolites have not been elucidated. To address this issue, hairy root cultures of *S. lateriflora* expressing the flavonoid-specific transcription AtMYB12 were developed. The expression of selected genes involved in flavonoid biosynthesis was determined by semi-quantitive RT-PCR. The levels of baicalein, baicalin, wogonin and other flavone derivatives in the hairy roots were determined by HPLC and the identity of these compounds was confirmed by LC/MS.

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The planning committee extends special appreciation to Arkansas State University's Chapter of The Honor Society of Phi Kappa Phi for their financial support of ***Create @ STATE***. Phi Kappa Phi is the nation's oldest, largest and most selective honor society for all academic disciplines. This year, Phi Kappa Phi donated $500 for the purchase of poster presentation easels. For more information about Phi Kappa Phi, please visit http://www.phikappaphi.org.

This publication is produced by Arkansas State University. Art and copy were provided by ASU's Office of Publications & Creative Services. Printing production was provided by ASU Printing Services.

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