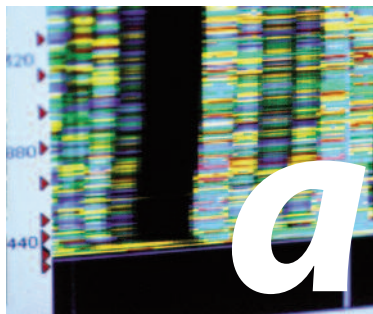


CREATE @ STATE

A Symposium of Research, Scholarship & Creativity
Thursday, April 5, 2012 • Arkansas State University Student Union





CREATE @ STATE[™]

A Symposium of Research, Scholarship & Creativity



Welcome to the second 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 combining Undergraduate Scholars Day with Graduate Scholars Day. The posters, oral presentation sessions and performances offer a unique and exciting cross section of the scholarly activity emerging all across our campus.

I encourage you to participate in as many of the day's activities as you are able. I am certain you will be inspired by the quality and depth of ASU student work, as well as the innovative collaborations occurring among many academic disciplines. The work of our students represents our future, and it's a good one.

Please ENJOY!

Best regards,

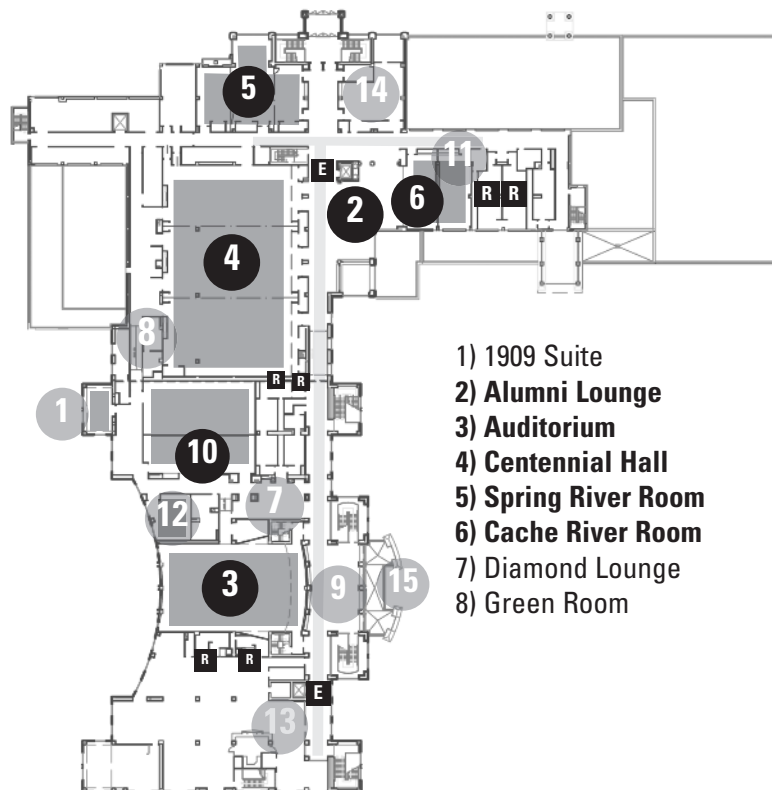
A handwritten signature in black ink, appearing to read 'Andy Novobilski', is centered on the page. The signature is fluid and cursive.

Andy Novobilski, P.h.D.
Interim Chief Research Officer

CREATE @ STATE

A Symposium of Research, Scholarship & Creativity

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	Various Locations Refer to schedule on page 4
12:30 – 1:45	Poster Session	Centennial Hall
	Refreshments	Centennial Hall
2:00 – 3:15	Oral Presentations of Papers & Research Findings	Various Locations Refer to schedule on page 5
3:30 – 4:30	Creative & Artistic Performances	Auditorium
4:30 – 5:00	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

Familial & Cultural Concerns

- n **Rural vs. Urban Adolescents: Is There a Difference?**
Charmaine Conner, Psychology (Undergraduate)
- n **Intimate Partner Violence and Mandatory Arrest Laws: A Look at the Deterrent Effect of Mandatory Arrest Laws on Intimate Partner Violence**
Lori Hall, Criminology (Graduate)
- n **Two Generations of Parents: Their Attitudes and Perceptions of Media Violence**
LaDesta McCann, Communication Studies (Graduate)
- n **The Prevalence of Supermarkets Among Poor and Wealthy Areas in Northeastern Arkansas: A Comparative Study**
Hillary Whitehorn, Sociology (Graduate)

Mockingbird 1

Explorations in Engineering

- n **Thermodynamic Analysis on Phase Change of Molten Salts: LiNO₃-NaNO₃, LiNO₃-KNO₃, and KNO₃-NaNO₃**
Michael Earls, Mechanical Engineering (Undergraduate)
- n **American Society of Civil Engineers Concrete Canoe**
Kayleigh Lincomfelt, Civil Engineering (Undergraduate)
- n **Rest Potential-Based Electrodeposition of Metal Sulfide Films**
M. Jason Newell, Environmental Studies (Graduate); Maqsood Ali Mughal, Environmental Science (Graduate)
- n **Update: Cadmium Telluride and Indium Sulfide Film Electrodeposition**
Joshua Vangilder, Environmental Science (Graduate); John Hall, Electrical Engineering (Undergraduate)

Mockingbird 2

Studies in Social Upheaval

- n **Critical Literacy through Dystopian Literature**
Katherine Cole, Middle Level Education (Undergraduate);
Kimberly Sims, Middle Level Education (Undergraduate)
- n **Affinity and Empire: Diagnosis of Europe in American Civil War Diplomacy**
Thomas Henry, History (Graduate)
- n **Russian Literature after Perestroika: The Historical Context for the Departure from Tradition**
Alana Holland, History (Undergraduate)
- n **Virtue in Ethics in Light of Social Psychology**
Elisabeth Hollingsworth, Philosophy (Undergraduate)

Spring River 1

Comparison, Conservation, Consumption & Cytology: Studies with Animals

- n **Testicular Histology and Germ Cell Cytology of Spermatogenesis in the Mississippi Map Turtle, Graptemys Pseudogeographica Kohnii, of Northeastern Arkansas**
Kelsey Lancaster, Biological Sciences (Undergraduate)
- n **Willingness to Pay for Human-Elephant Conflict Mitigation**
Dinesh Neupane, Environmental Science (Graduate)
- n **Effects of Increased Oral Nicotine Concentration on Intake by Male and Female Rats**
Jeff Lynch, Psychology (Undergraduate)
- n **Comparison of Positive and Negative Heat Reinforcement in Chicks**
Loren Roberson, Psychology, Philosophy (Undergraduate); Lauren Tyler, Psychology (Undergraduate);
Tonya Witt, Psychology (Undergraduate)

Spring River 2

Finance & Consumerism

- n **Complex Finance and its Role in the 2008 Financial Crisis**
Andrew Todd, Finance (Undergraduate)
- n **Motivation Differences in Online Group Buying Between Chinese and American College Students**
Gao Jing, Radio-Television (Graduate); Wang Jing, Radio-Television (Graduate)
- n **College Students Use of Online Yard Sales**
Yuka Maeda, Journalism (Undergraduate); Mian Li, Radio-TV (Undergraduate)
- n **The Persuasiveness of Consumer Generated Content on YouTube**
Renette McCargo, Radio-Television (Graduate)

Perceptions, Perceptions

- **Perceptions of Art**
Hannah Holloway, Psychology (Undergraduate)
- **The Perception of Online Classes vs. Traditional Classes**
Lauren Tyler, Psychology (Undergraduate); Tonya Witt, Psychology (Undergraduate)
- **Employees' Perceptions of Stalkers Personality, Motivation and Stopping Pursuit as a Function of Stalker Gender and Stalker Age**
Lauren Tyler, Psychology (Undergraduate); Tonya Witt, Psychology (Undergraduate)
- **Television Violence and Its Effects on Viewers**
Morgan McKenzie, Journalism-Public Relations (Undergraduate); Eugene McCann, Journalism Public Relations (Undergraduate); and Kylle Scott, Journalism-Radio-TV (Undergraduate)

Mathematics, Physics & Computer Science

- **Dynamic Contact of Viscoelastic Rods with Two Stops: Numerical Approaches**
Jon Calhoun, Computer Science (Undergraduate)
- **Preemption of a CUDA Kernel Function**
Jon Calhoun, Computer Science (Undergraduate)
- **Applying the Exterior Matrix Method to Inclined Cable Structures**
Matthew Manning, Mathematics (Undergraduate)
- **Glucos from Color Glass Condensate Collisions**
Chenoa Summers, Physics (Undergraduate); Lauren Henderson, Mathematics (Undergraduate)
- **The Motion of Particles with Dynamic Adhesive Contact**
Jared Wolf, Mathematics (Undergraduate)

Childhood: Reading & Relationships

- **A Preliminary Investigation of Potential Subtle Middle Ear Differences in Children with Reading Delays**
Brittany Bailey, Communication Disorders (Undergraduate)
- **Early Childhood Attachment Expressed in Female Adult Romantic Relationships**
Megan Dixon, Psychology (Undergraduate); Alicia Butler, Psychology (Undergraduate)
- **Childhood Attachment Predicts Openness to Touch**
Elizabeth Kibbons, Psychology (Undergraduate); Kimberly James, Psychology (Undergraduate)
- **A Tale of Two Twins: The Need for Systematic and Explicit Instruction in Kindergarten**
Teri Spillman, Reading Education (Graduate)

Advancing Bioenergy Production

- **Nitrogen Dynamics in Biomass Cropping Systems**
Lucia Acosta-Gamboa, Agriculture and Technology (Graduate)
- **Bioproduction of a Thermostable Enzyme for Processing Arkansas Sugar Beets**
Jose Tovar, Molecular Biosciences (Graduate)
- **Progress on Biofuel Pellet Research**
Shyam Thapa, Environmental Science (Graduate)

Assessment at ASU

- **Deeper Than You Think: The Effects of Faculty Perceptions on Expectations for Freshmen Success**
Briana Calhoun, Psychology (Undergraduate); Judy Birdno, Psychology (Undergraduate); Amber Fry, Psychology (Undergraduate); Logan Sheets, Psychology (Graduate)
- **Research Competencies of ASU Graduate Students: The Research Practices Survey**
Elizabeth Kibbons, Psychology (Undergraduate); Adrianna Payne, Psychology (Undergraduate); Brianna Umberger, Psychology (Undergraduate)

11:00 – 12:15

Cache River
Mockingbird 1
Mockingbird 2
Spring River 1
Spring River 2

Studying Students

- n **Social Media Use: Effects on the Daily Lives of College Students**
Katherine Cothorn, Journalism (Undergraduate)
- n **Cognitive Analysis of Choosing a College**
Sarah Landry, Psychology (Undergraduate)
- n **Black Male Retention at Arkansas State University**
Tabitha Reynolds, Psychology (Undergraduate)
- n **Educational Narratives of At-Risk Students**
Neena Viel, Communication Studies (Undergraduate)

Mathematics & Computer Science

- n **Construction and Classification of Generalized Minimum Aberration Designs of Hadamard Matrices on a Graphics Processing Unit**
Jon Calhoun, Computer Science (Undergraduate)
- n **Constructing Nonregular Robust Parameter Designs for Quality Improvement**
Kelsea Cox, Mathematics (Graduate)
- n **New Confidence Intervals for the AR(1) Parameter**
Ashton Erwin, Mathematics (Undergraduate)
- n **Construction of Generalized Minimum Aberration Designs of 36, 40 and 44**
Laura White, Mathematics (Undergraduate)

The English Panel

- n **An Exposé of Social Disconnections**
Miranda Jones, English (Graduate)
- n **I Don't Know How You Feel: John Dowell's Process of Emotional Discovery**
Leslie Reed, English (Graduate)
- n **Writing a New Mestiza: Identity Formation in Sandra Cisneros's *The House on Mango Street* and *Woman Hollering Creek***
Amber Strother, English (Graduate)

Arkansas Agriculture and Natural Resource Management

- n **Condition of Arkansas Wetlands, Classifications and Types of Assessments**
David Burge, Environmental Science (Graduate)
- n **Understanding Floristic Diversity Through a Database of Greene County Specimens**
Kari Harris, Biological Sciences (Graduate)
- n **Judd Hill Irrigation Research**
Wen Wang, Radio-Television (Graduate); Erin Kelly, Agriculture and Technology (Graduate)

Current Issues in Athletics

- n **Title IX and its Impact on Gender Blindness in Sports Marketing**
Chris Graddy, Sports Administration (Graduate); Ashlyn Kohler, Sports Administration (Graduate); Daeun Kim, Sports Administration (Graduate)
- n **Employees' Work Motivation in Japanese Fitness Clubs**
Yuko Mizuuchi, Sports Administration (Graduate)
- n **Forty Years Later: Is Title IX Being Enforced in Collegiate Athletics?**
Rachel Floor, Sports Administration (Graduate); Eric Muñoz, Sports Administration (Graduate); Kodi Burns, Sports Administration (Graduate)
- n **Sportsmanship vs. Winning in Youth Sports**
Dean Torgerson, Sports Administration (Graduate); Juliana Zavala, Sports Administration (Graduate); Derrick Dixon, Sports Administration (Graduate)

Artistic Presentations

Listed in alphabetical order by lead presenter

CREATE @ STATE[™]

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Curtis, Joseph – Music, Graduate
joseph.curtis@smail.astate.edu

n Landscapes: A Musical Journey

Landscapes is a six-movement original composition for electronic string quartet and digital trumpet. It portrays six unique Earth environments: arid deserts, eerie marshlands, austere polar regions, rolling rivers, majestic mountains and bustling cities. The goal of this composition is not to provide a literal description of the world as it is, but rather to provide a retro-futuristic perspective; that is, it is an electronic musical library of the world as it might look to a future traveler. This is accomplished through the use of a new instrument, the Morrison Digital Trumpet, accompanied only by an electronic representation of the venerable string quartet. A short discussion of techniques employed will precede the performance.

Faculty Mentor: Dr. Chris Wilson, Music, cwilson@astate.edu

Martin, Kofi – Music, Graduate
kofi.martin@gmail.com

n Globalization and Musical Transculturalism: A Performance Lecture on the Hybridity of Colombian Folk Music, Latin Jazz and Hip Hop

Colombia's geographical biodiversity is reflected in the multicultural heritage of indigenous, African and European origins. Among its contributions to the kaleidoscope of Latin American music, cumbia, a rhythm whose origin derives from early sixteenth-century Spanish occupation of Colombia's northern Atlantic coast, continues to be internationally recognized as a national cultural symbol. This performance lecture will explore the historical significance and contemporary relevance through a latin-jazz, hip-hop readaptation of "La Pollera Colora," or "The Colored Skirt" originally composed by Juan Madera and Wilson Chopenena.

Faculty Mentor: Dr. Christopher Wilson, Music, cwilson@astate.edu



Oral Abstracts

Listed in alphabetical order by lead presenter

CREATE @  STATETM

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Acosta-Gamboa, Lucia – Agriculture and Technology, Graduate

lucia.acostagamboa@smail.astate.edu

n Nitrogen Dynamics in Biomass Cropping Systems

Use of biomass to produce bioenergy is an option to reduce the impact of energy management and production on the environment. A field experiment was conducted during 2011 at Arkansas State University to determine the nitrogen uptake patterns during the crop cycle for eastern gamagrass, switchgrass and high biomass sorghum. We compared the nitrogen use efficiency and dry-matter yield with three different sources of nitrogen: urea, municipal biosolids and poultry litter. Dry-matter yields for the nitrogen sources were not significantly different and all three nutrient sources produced significantly greater yield than the control, except for the high biomass sorghum yield. The expected outcomes include nutrient use efficiency factors for these biomass crops and the alternative nitrogen sources.

Faculty Mentor: Dr. Steven Green, Agriculture and Technology, sgreen@astate.edu

Other Author: Dr. Steven Green

Bailey, Brittany – Communication Disorders, Undergraduate

brittanyd.bailey@smail.astate.edu

n A Preliminary Investigation of Potential Subtle Middle-Ear Differences in Children with Reading Delays

This investigation examined possible subtle middle-ear differences between children who were above- and below-average readers. Kindergartners through third grade participants were ranked according to percentile reading scores. Children were assigned to one of two groups, with one group representing the lower quartile and one group the upper quartile. Participants had no significant history of ear infections, middle ear disorders or suspected hearing loss. Middle-ear function assessment included measures of external ear canal volume, middle ear compliance and middle-ear pressures. An independent t-test between mean-right middle-ear pressures was significant. Implications for this finding as well as recommendations for future study will be discussed.

Faculty Mentor: Dr. D. Mike McDaniel, Communication Disorders, dmcdan@astate.edu

Burge, David – Environmental Science, Graduate

david.burge@smail.astate.edu

n Preemption of a CUDA Kernel Function

Although Graphic Processing Units (GPUs) have exhibited an unquestionable performance advantage over CPUs with highly parallel tasks, they remain difficult to program for multiple users because of its scheduler's non-preemptiveness, i.e., once a job is issued to the GPU, it must run to completion. Having a non-preemptive CUDA (Compute Unified Device Architecture) kernel function may be sufficient for simple applications, but not for highly parallel HPC applications. One job might occupy the GPU for too-long time while others are waiting. Without any modification of GPU drivers, an application-level scheduler is developed to enable a CUDA kernel function to be preemptive so all kernel functions can take turns to use GPUs. This can greatly increase the efficiency and fairness of GPU use as well as the job throughput in HPC supercomputers.

Faculty Mentor: Dr. Hai Jiang, Computer Science, hjiang@astate.edu

Other Author: Dr. Hai Jiang

Calhoun, Briana – Psychology, Undergraduate

briana.calhoun@smail.astate.edu

Fry, Amber – Psychology, Undergraduate

amber.fry@smail.astate.edu

n Critical Literacy through Dystopian Literature

This presentation was originally for the Arkansas Curriculum Conference and designed to educate teachers about how to use dystopian literature to teach critical literacy skills. We will showcase popular young adult novels such as "The Hunger Games," "Divergent," "Among the Hidden," "Matched" and "House of the Scorpion." We will present a new perspective on this emerging genre of literature and how teachers in middle grades can guide students in generating questions about the future worlds we find in dystopian literature.

Faculty Mentor: Dr. Dixie Keyes, Teacher Education, dkeyes@astate.edu

Birdno, Judy – Psychology, Undergraduate

judy.birdno@smail.astate.edu

Sheets, Logan – Psychology, Graduate

logan.sheets@smail.astate.edu



Calhoun, Jon – Computer Science, Undergraduate
jon.calhoun42@gmail.com

n **Construction and Classification of Generalized Minimum Aberration Designs of Hadamard Matrices on a Graphics Processing Unit**

The process of applying Generalized Minimum Aberration Criterion to non-regular fractional factorial designs is extremely computationally intensive. Exploitation of the massively parallel nature of modern graphics processing units (GPUs) are used to perform the task. The computation is not just ported to the GPU, but is implemented as to optimize performance based upon the modern GPU architecture. Optimizations include using bit operations and table look-ups to reduce the number of addition and multiplication operations performed. Using a proof from previous research reduces the memory required for the calculation. Optimizations regarding memory storage and transfer on the GPU are also explored, as well as streams and multiple GPUs.

Faculty Mentor: Dr. Hong Zhou, Mathematics and Statistics, hzhou@astate.edu

Other Authors: Dr. Hai Jiang, Computer Science; Dr. Hong Zhou, Josh Graham, Computer Science

Calhoun, Jon – Computer Science, Undergraduate
jon.calhoun42@gmail.com

n **Dynamic Contact of Viscoelastic Rods with Two Stops: Numerical Approaches**

We consider a viscoelastic rod that falls and bounces between two stationary rigid surfaces. This dynamic contact problem satisfies Signorini's contact conditions, which can be interpreted in terms of complementary conditions. The motion of the viscoelastic rod is modeled by a third order partial differential equation where the midpoint rule and the Implicit Euler method is applied in elasticity and viscosity. Numerical solutions are computed using time discretization over the time domain, finite element method over the spatial domain, and Implicit Euler method in the complementary conditions. The numerical solutions are computed by solving a linear system and applying the complementary conditions. Boundedness of energy is investigated in the formulation of these solutions, which plays an important role in proving the existence of solutions.

Faculty Mentor: Dr. Jeogho Ahn, Mathematics and Statistics, jahn@astate.edu

Calhoun, Jon – Computer Science, Undergraduate
jon.calhoun42@gmail.com

n **Preemption of a CUDA Kernel Function**

Although Graphic Processing Units (GPUs) have exhibited an unquestionable performance advantage over CPUs with highly parallel tasks, they remain difficult to program for multiple users because of its scheduler's non-preemptiveness, i.e., once a job is issued to the GPU, it must run to completion. Having a non-preemptive CUDA (Compute Unified Device Architecture) kernel function may be sufficient for simple applications, but not for highly parallel HPC applications. One job might occupy the GPU for too long a time, while others are waiting. Without any modification of GPU drivers, an application-level scheduler is developed to enable a CUDA kernel function to be preemptive, so all kernel functions can take turns to use GPUs. This can greatly increase the efficiency and fairness of GPU use as well as the job throughput in HPC supercomputers.

Faculty Mentor: Dr. Hai Jiang, Computer Science, hjiang@astate.edu

Other Author: Dr. Hai Jiang

Cole, Katherine – Middle Level Education, Undergraduate
katherine.cole@smail.astate.edu

n **Critical Literacy through Dystopian Literature**

This presentation was originally for the Arkansas Curriculum Conference and designed to educate teachers about how to use dystopian literature to teach critical literacy skills. We will showcase popular young adult novels such as "The Hunger Games," "Divergent," "Among the Hidden," "Matched" and "House of the Scorpion." We will present a new perspective on this emerging genre of literature and how teachers in middle grades can guide students in generating questions about the future worlds we find in dystopian literature.

Faculty Mentor: Dr. Dixie Keyes, Teacher Education, dkeyes@astate.edu

Sims, Kimberly – Middle Level Education, Undergraduate
kimberlyd.sims@smail.astate.edu

Cothorn, Katherine – Journalism, Undergraduate
katherine.cothorn@smail.astate.edu

n **Social Media Use: Effects on the Daily Lives of College Students**

Social media is a source of online tools that allows people from across the world to communicate others. Because social media use is becoming more popular, college students are spending the majority of their time online. This study looks at effects of social media use on the daily lives of college students. It examines college students academic success, study habits, social interaction and family interaction in relation to their social media use. Excess social media use can have both positive and negative outcomes, depending on how the students perceive social media. The results of this study show the majority of students believe social media use has an effect on their grades as well as their study habits.

Faculty Mentor: Dr. Po-Lin Pan, Radio-Television, ppan@astate.edu

Other Author: Barbara Barnett, Journalism

Cox, Kelsea – Mathematics, Graduate

kelsea.brewer@smail.astate.edu

n Constructing Nonregular Robust Parameter Designs for Quality Improvement

Robust parameter design is used in manufacturing and quality improvement to optimize performance and make processes insensitive to variation in nuisance noise factors. Optimal settings of control variables that minimize the effects of the noise variables are found by exploiting the interaction between control and noise variables. Experimental designs to study these effects are called robust parameter designs. A forward selection algorithm for constructing optimal nonregular robust parameter designs for industrial application has been investigated.

Faculty Mentor: Dr. Debra Ingram, Mathematics and Statistics, dingram@astate.edu

Other Authors: Dr. Debra Ingram; Latia Carraway

Dixon, Meagan – Psychology, Undergraduate

meagan.dixon@smail.astate.edu

Butler, Alicia – Psychology, Undergraduate

alicia.halfacre@smail.astate.edu

n Early Childhood Attachment Expressed in Female Adult Romantic Relationships

Having successful adult relationships begins in childhood. In fact, childhood attachments affect our romantic attachments later in life. Our research focuses on female childhood attachments to their mothers. We expect to find that those females who had a secure attachment in childhood now have healthier romantic relationships as adults and are less dependent on their partner, whereas those with insecure attachments are more dependent in their current relationships. Drawing on this, we will better be able to understand the critical nature of childhood attachments to future success or failure of romantic relationships.

Faculty Mentor: Dr. David Saarnio, Psychology and Counseling, dsaarnio@astate.edu

Earls, Michael – Mechanical Engineering, Undergraduate

michael.earls@smail.astate.edu

n Thermodynamic Analysis on Phase Change of Molten Salts: LiNO₃-NaNO₃, LiNO₃-KNO₃, and KNO₃-NaNO₃

Experimental measurement of thermodynamic properties of pure and binary molten salts has been carried out to develop novel phase change materials for renewable power plant applications. Thermodynamic properties, including solidus and liquidus temperatures, specific heats and latent heats during phase change of synthesized salts at different molar concentrations, have been measured and analyzed using DSC (Differential Scanning Calorimetry). The measured data in this study was validated with published reference data and modeling results. Thermodynamic modeling to predict phase equilibria by using the TGEM (Total Gibbs Energy Minimization) has been performed. Current construction status of experimental simulator of Andasol solar thermal energy storage system is introduced.

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

Other Author: Dr. Kwangkook Jeong, Dr. Brad Edgar, Joe Murphy

Erwin, Ashton – Mathematics, Undergraduate

ashton.erwin@smail.astate.edu

n New Confidence Intervals for the AR(1) Parameter

This paper presents a new way to construct confidence intervals for the unknown parameter in a first-order autoregressive, or AR(1), time series. Typically, one might construct such an interval by centering it around the ordinary least-squares estimator, but this new method instead centers the interval around a linear combination of a weighted least-squares estimator and the sample autocorrelation function at lag one. When the sample size is small and the parameter has magnitude closer to zero than one, this new approach tends to result in a slightly thinner interval with at least as much coverage.

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

Gao, Jing – Radio-Television, Graduate

jing.gao1@smail.astate.edu

Wang, Jing – Radio-Television, Graduate

jing.wang1@smail.astate.edu

n Motivation Differences in Online Group Buying between Chinese and American College Students

Online group buying has become very popular, especially in China and the U.S. This study focuses on specific motivating factors and the relationship among trust, high-tech persons, the effect of "Sheep Flock," culture differences and frequency of online group purchases. The study explores the differences in motivation of online group purchase between Chinese and American college students using a survey sampling of 50 Chinese and 50 ASU students.

Faculty Mentor: Dr. Po-Lin Pan, Radio-Television, ppan@astate.edu

Graddy, Chris – Sports Administration, Graduate
christop.graddy@smail.astate.edu

Kim, Daeun – Sports Administration, Graduate
daeeun.kim@smail.astate.edu

Kohler, Ashlyn – Sports Administration, Graduate
ashlyn.kohler@smail.astate.edu

n Title IX and its Impact on Gender Blindness in Sports Marketing

The purpose of this study is to show how Title IX helped lead to gender blindness in sport marketing. Title IX was enacted on June, 23, 1972, and states, "No person in the United States shall on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program, or activity receiving Federal financial assistance." (A Policy Interpretation supra note 12). As a result, many schools and universities have been forced to alter their athletic programs in order to comply with Title IX regulations. Historically, equality in collegiate athletics among men and women has been subject for discussion. In recent years, the discussion has continued in equality in participation competition, as well as equality related to the marketing of female sports.

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

Hall, Lori L. – Criminology, Graduate
loril.hall@smail.astate.edu

n Intimate Partner Violence and Mandatory Arrest Laws: A Look at the Deterrent Effect of Mandatory Arrest Laws on Intimate Partner Violence

Intimate partner violence affects more than 400,000 women each year. Until the late 1900s, intimate partner violence was not a concern for researchers and criminal justice practitioners. In an effort to reduce intimate partner violence, studies have been conducted to determine interventions that reduce subsequent assaults. Research determining the significance of mandatory arrests law on subsequent assaults is important in understanding the deterrent effects of the law. However, major research studies report controversies within the findings. Some support mandatory arrest laws while others find no deterrent effects. Future studies looking at reduction tactics in policing intimate partner violence are necessary to understand the deterrence effect of mandatory arrest laws.

Faculty Mentor: Dr. Doris Chu, Criminology, Sociology and Geography, dchu@astate.edu

Harris, Kari – Biological Sciences, Graduate
kari.panhorst@smail.astate.edu

n Understanding Floristic Diversity through a Database of Greene County Specimens

We present a preliminary flora of Greene County, Arkansas, based on accessioned collections from the Arkansas State University Herbarium (STAR). Currently, there are 1,499 specimens representing 538 species from Greene County in STAR. Using the USDA Plants Database, plant species were analyzed according to whether or not they are native to the state, as well as whether or not they have been previously documented as species occurring in the county. Having analyzed all the Greene County collections from STAR, we found 214 previously undocumented species.

Faculty Mentor: Dr. Travis Marsico, Biological Sciences, tmarsico@astate.edu

Other Authors: Dr. Travis Marsico; Meghan Foard, Biological Sciences

Henry, Thomas – History, Graduate
thomas.henry@smail.astate.edu

n Affinity and Empire: Diagnosis of Europe in American Civil War Diplomacy

This presentation argues that current historiographical arguments regarding Europe's actions (or inactions) as they relate to the American Civil War are too narrowly defined. Many of the most persistent explanations have been either based upon "symptoms" such as slavery, "King Cotton Diplomacy," European need for Northern grain, fear of war with the United States, desire to see the American Republic weakened, and others. Rather than simply diagnosing Europe's actions (or inactions) based upon a single most-pressing symptom, this study considers all symptoms collectively. This research indicates Europe actually suffered from at least two illnesses, which mixed and mingled symptoms. This also explains the contradictory actions (or inactions) of European nations as well.

Faculty Mentor: Dr. Gary Edwards, History, gedwards@astate.edu



Holland, Alana – History, Undergraduate

alana.holland@smail.astate.edu

n Russian Literature after Perestroika: The Historical Context for the Departure from Tradition

In Russia, literature has always constituted a sort of "second government." Russian literature, having a historical/societal/political purpose, served a moral obligation of enlightenment. After Perestroika and the subsequent fall of the Soviet Union, the roll of the author/poet in Russia changed. Literature itself changed. There are no leading voices - among authors - who occupy the same sacred space in Russians' hearts and minds that they used to occupy. Why did this happen? How did this happen? What does this mean for Russia today? These are the questions my research will attempt to answer.

Faculty Mentor: Dr. Alexander Sydorenko, History, asydorenko@astate.edu

Hollingsworth, Elisabeth – Philosophy, Undergraduate

elisabeth.hollingsworth@smail.astate.edu

n Virtue Ethics in Light of Social Psychology

In recent work, philosophers Gilbert Harman and John Doris have argued contemporary social psychology shows the philosophical tradition known as "virtue ethics" is bankrupt. In this presentation, I plan to give an overview of virtue ethics, relevant recent social psychology, and the so-called "situationist" critique of virtue ethics. I will then focus on one piece of evidence used by Harman and Doris, viz., the famous Milgram obedience experiments. I argue the results of the Milgram experiments do not significantly contribute to undermining virtue ethics.

Faculty Mentor: Dr. Daniel Massey, English and Philosophy, dmassey@astate.edu

Holloway, Hannah – Psychology, Undergraduate

hannah.holloway@smail.astate.edu

n Perceptions of Art

The perception of artwork is a subjective issue that is difficult to grasp and understand scientifically. Each viewer can have a different understanding of the same piece. This study examines how college students interpret paintings by using statements that introduce the idea that there is meaning to be interpreted. Using a five-point Likert scale, participants chose whether or not they agreed six listed concepts were conveyed in each painting. Liking of the paintings was measured in the same manner. The last painting had an open-response question, which provides qualitative data on the perceived meaning. It is expected female participants will infer meaning more often, and will like the paintings more than males.

Faculty Mentor: Dr. David Saarnio, Psychology and Counseling, dsaarnio@astate.edu

Jones, Miranda – English, Graduate

miranda.jones@smail.astate.edu

n An Exposé of Social Disconnections

This presentation will consist of a creative writing collection. The collection should be helpful, as well as thought-provoking. The collection was designed and created for the exploration of self and the complication of relationships. It is through this exploration the material will invite arguments for change and connection.

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Kibbons, Elizabeth – Psychology, Undergraduate

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n Childhood Attachment Predicts Openness to Touch

As an infant cuddling with mother, a caregiver giving a comforting pat, or as an adult receiving affection from a loved one, touch is part of our lives. Positive human touch can lower heart rates, blood pressure and stress hormones. However, not everyone enjoys a hug or touch. Why? Our hypothesis is preference or aversion to touch comes from attachments in childhood. Attachment occurs when a child builds an enduring relationship with a responsive caregiver. This study looks at childhood attachment as a predictor of adult openness to touch displayed in hugs. We expect to find attitudes about hugs correlate with the security of attachment in childhood. This study has implications for adult relationships and adult treatment of social anxiety.

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n Research Competencies of ASU Graduate Students: The Research Practices Survey

Graduate study requires proficiency with research skills, habits and abilities. Student competency with research practices is critical as ASU seeks the Carnegie classification of a Research Intensive University. Seventy-five graduate students representing education, humanities, communications, biology, business and health professions completed the Research Practices Survey. Results will be discussed in terms of library usage, ease of/and attitude toward library searches, discernment of credible sources and perceived threats and obstacles to creating scholarly papers. Recommendations for enhancing undergraduate skills along with suggestions for graduate coursework will be provided.

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n Testicular Histology and Germ Cell Cytology of Spermatogenesis in the Mississippi Map Turtle, *Gratemys Pseudogeographica Kohnii*, of Northeastern Arkansas

The testicular histology and cytology of spermatogenesis in *Gratemys pseudogeographica kohnii* were examined using specimens collected between July 1992 and May 2004 from counties in northeastern Arkansas. Testes were obtained from 21 specimens deposited in the Arkansas State University Museum of Zoology. Standard histological techniques were used to prepare tissues for light microscopy. A histological examination of the testes, elucidated using histochemistry and an analysis of germ cell cytology, indicated a postnuptial testicular cycle of spermatogenesis and a fall spermiation event. The majority of the germ cell population in May specimens is represented by resting spermatogonia, spermatogonia A, spermatogonia B, and numerous Sertoli cells at the basement membrane.

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n Cognitive Analysis of Choosing a College

Cognitive processes is part of the everyday life experience. This presentation will be an analysis of the cognitive process of the decision of choosing a good college.

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

Lincomfelt, Kayleigh – Civil Engineering, Undergraduate
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n American Society of Civil Engineers Concrete Canoe

The American Society of Civil Engineers (ASCE) competes in the Deep South Conference each spring. The conference was hosted by the University of Tennessee at Martin in late March of this year. The South Conference is composed of 13 schools from Louisiana, Mississippi, Tennessee and Arkansas. This conference has many events, but one of the most popular is the concrete canoe competition. ASU ASCE competes in this competition each year; this year is no exception. Students began work early on the mix design and mold design of the canoe. The mix is composed of mostly sustainable materials and has a low unit weight of about 40 pcf and a high compressive strength of about 1,500 psi at five days of curing.

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n Effects of Increased Oral Nicotine Concentration on Intake by Male and Female Rats

Previous research on oral nicotine using a multiple-bottle approach shows availability strongly influences consumption. Adult Sprague-Dawley rats (16 M; 16 F) served as subjects. A five-bottle method was used: one of water, two of 15 µg/ml nicotine solution, and two of 30 µg/ml nicotine solution.

A two-week baseline was followed by the introduction of nicotine for two weeks. Rats in the nicotine group consumed about half as much nicotine as water. Intake of the two solutions was equivalent. When converted into mg/kg, twice as much nicotine was taken via the 30 µg/ml solution.

Accounting for bodyweight, no significant differences between the sexes were found. Intake for both solutions was far below the levels predicted if availability was the primary factor for intake.

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n **College Students Use of Online Yard Sales**

Popularity of online yard sales is increasing because of popularization of the internet and social network services. Our research is based on why college students use online yard sales instead of real yard sales. We demonstrate how often college students use it and what is its advantages and disadvantages; how gender differences influence online yard sale; and how trust between buyer and seller influence shopping attitude. The most important purpose is how online yard sales are related to life satisfaction. Surveys will be utilized for collecting quantitative information about items. We have to know how college students use online yard sales, as well as frequency of use. We will then conclude why college students use online yard sales.

Faculty Mentor: Dr. Po-Lin Pan, Radio-Television, ppan@astate.edu

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n **Applying the Exterior Matrix Method to Inclined Cable Structures**

We will apply the Exterior Matrix Method to find the approximate eigenvalues for serially connected inclined cables. The dynamics of each cable satisfies a system of four partial differential equations, but even the linearization cannot be solved in closed form. However, the Exterior Matrix Method does not require the solution of the governing equations. The eigenfrequency information is embedded in a 6x6 exterior matrix for each span. The matrices are multiplied together to solve for the eigenfrequencies.

Faculty Mentor: Dr. William Paulsen, Mathematics and Statistics, wpaulsen@astate.edu

McCann, LaDesta – Communication Studies, Graduate
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n **Two Generations of Parents: Their Attitudes and Perceptions of Media Violence**

There have been decades of research exploring the correlation between violent media and real life violence. Through research, issues such as inadequacies in the currently defined rating system, breakdowns in American society, and a child learning that infliction of pain is a source of entertainment, has raised many concerns about the media and its portrayal of violence. This study explores the attitudes of First-Generation Internet Parents and Pre-Internet Generation parents and their views on the amount of violence to which their children are exposed. It will also examine the difference in perception of media violence and acceptable levels of violent content children should be exposed to between First-Generation Internet Parents and Pre-Internet Generation Parents.

Faculty Mentor: Dr. Matthew Thatcher, Communication Studies, mthatcher@astate.edu

McCargo, Renette – Radio-Television, Graduate
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n **The Persuasiveness of Consumer Generated Content on YouTube**

YouTube is an Internet venue where anyone can upload and share videos with other people. Regular YouTube visitors become as familiar with people who upload videos as they do with people they know offline. This paper examines how consumers use the Internet to seek information online before making product purchasing decisions. The Uses and Gratification Theory was used to guide the analysis. In-depth interviews and a focus group were conducted to determine whether viewers are influenced by electronic consumer generated content on YouTube more so than they are influenced by traditional advertising. Participants discussed how YouTube has become a part of their daily lives and whether product information on YouTube is reliable, satisfactory and useful for their purchasing decisions.

Faculty Mentor: Dr. Lillie Fears, Journalism, lfears@astate.edu

Mizuuchi, Yuko – Sports Administration, Graduate
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n **Employees' Work Motivation in Japanese Fitness Clubs**

Japanese fitness clubs have been forced to seek ways to differentiate themselves for the recent economic recession and competitive fitness market. For effective management approaches, focusing on motivation of employees who can make long-term relationships with customers is being emphasized. The purpose of this study was to identify factors that motivate employees in fitness clubs, as well as to investigate any relationship between 10 job-related motivations in Japanese fitness clubs, employees and the demographic variables. The findings showed the most significant motivational factor was sympathetic help with personal problems, while good wages and feeling of involvement were less important motivational factors.

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

Neupane, Dinesh – Environmental Science, Graduate
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n Willingness to Pay for Human-Elephant Conflict Mitigation

Conservation comes at a cost, but benefits incurred from wildlife protection are distributed unevenly in society. Human Elephant Conflict (HEC) is a significant phenomenon in the Eastern Himalayan region, with occasional human casualties. Direct economic losses result from destructions of crop fields, livestock and homes, while indirect losses arise from lost livelihoods. This study evaluates the economic viability of elephant conservation in Nepal based on data gathered via contingent valuation method within the context of current HEC scenario. Identifying stakeholder perceptions on elephant conservation and mitigation strategies is essential to secure conservation goals. Local people appear positive towards conservation via HEC mitigation programs, while demanding program transparency.

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n Rest Potential-Based Electrodeposition of Metal Sulfide Films

Electrodeposition is a low-cost method for depositing films of semiconductors for device applications such as photovoltaics. We report research on using quasi rest potentials (QRP) of growing films as a means to monitor and control stoichiometry. The QRP is the open-circuit voltage established between the film and solution immediately after current is interrupted. It is a sensitive function of film and solution composition. In conjunction with cyclic photovoltammetry, it exhibits structures at critical deposition voltage values; for example, the potential of perfect stoichiometry. The described work focuses upon copper indium disulfide, a potential low hazard solar cell material. This work is jointly funded by National Science Foundation Grant 1003970 and NASA Grant NNX09AW22A.

Faculty Mentor: Dr. Robert Engelken, Engineering, bdegens@astate.edu

Other Authors: Dr. Bruce Johnson, Chemistry and Physics; Dr. Ross Carroll, Chemistry and Physics; Joshua Vangilder, John Hall, Frederick Felizco, David McNew, Elizabeth Hundley, Shyam Thapa

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n Forty Years Later: Is Title IX Being Enforced in Collegiate Athletics?

Title IX of the Education Amendments of 1972 prohibits sex discrimination in education programs or activities that receive federal funding. The purpose of this study is to review compliance with Title IX at institutions using the three-prong compliance test developed by the Office of Civil Rights (OCR). The test determines gender equity by calculating "substantial proportionality," evaluating history and continuing practice of progress, and "effectively accommodating the interests and abilities of the underrepresented gender." Research suggests there are a large number of universities participating in gender discrimination. This study will help better determine if Title IX is being adequately enforced as established by the OCR's three-prong test.

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

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n I Don't Know How You Feel: John Dowell's Process of Emotional Discovery

John Dowell, the narrator of Ford Madox Ford's "The Good Soldier," is unreliable. Critics agree Dowell's unreliable narration stems from his repression of his whole self, but many disagree about what this repression is meant to indicate. While other theories recognize the unreliability of Dowell does have significance, they fail to consider Dowell's predisposition to frame his life in logic. The unreliable narration of John Dowell demonstrates that despite his preference for reason, he has undertaken a study of emotions. He is unreliable not because he becomes emotional, but because he attempts to place emotions within a frame of reason, causing contradictions. The choices Dowell makes demonstrate his attempt to apply reason to all aspects of his life.

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n Black Male Retention at Arkansas State University

The retention of students continues to be a struggle for many universities in the United States. Many students drop out before completing their degree. This is especially true for Black male students. With a national six-year college graduation rate of 39%, Black male retention is an issue that deserves attention. This study examines the experiences of Black male students attending Arkansas State University (ASU). Students completed a survey about their personal motivation and responsibility, and the support from family, friends and ASU to help them successfully make it to graduation. The outcomes of this study could provide students, faculty and administration at ASU with a look into the experiences of Black male students as they work toward graduation.

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n Comparison of Positive and Negative Heat Reinforcement in Chicks

Some psychologists believe positive and negative reinforcement are functionally similar. However, no empirical data had been gathered to defend this position. The current study directly compares heat reinforcement in baby chicks. Chicks in each condition will shuttle in order to be positively and negatively reinforced. If reinforcement is equal then the time it takes for chicks to shuttle in each condition will also be equal. The goal of the study is to not only shed empirical light on the controversy of reinforcement, but also to open discourse on reinforcement and scientific assumptions in general.

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n A Tale of Two Twins: The Need for Systematic and Explicit Instruction in Kindergarten

In the spring of 2011, two twin boys, both highly intelligent, were having vastly different experiences in their reading education. One twin (twin A) received systematic and explicit reading instruction in his classroom. The other twin (twin B) did not receive systematic and explicit reading instruction. This resulted in the inability of twin B to decode CVC (consonant-vowel-consonant) words and greatly affected his self-esteem. We wanted to provide simple, weekly interventions based on research to move twin B's reading achievement closer to twin A. We wanted to improve his self-esteem and give him a good start to first grade. We also wanted to research the effects of different reading instruction on the twins ability to read.

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**n Writing a New Mestiza: Identity Formation in Sandra Cisneros's
 The House on Mango Street and Woman Hollering Creek**

Sandra Cisneros's *The House on Mango Street* and *Woman Hollering Creek* depict women discovering themselves amid social, familial and cultural influences. Characters are often torn between their Mexican and American heritages, and it is only by creating a new Chicana identity that they are able to reconcile the divide between the two. As both Cisneros and her characters attempt to speak for the community of women around them, writing becomes the vehicle through which they achieve this communal and multicultural voice.

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n Gluons from Color Glass Condensate Collisions

The Color Glass Condensate (CGC) is a high-density, high-energy form of matter that occurs when heavy ions move near the speed of light. When two such high-energy heavy ions collide, gluons are emitted. These gluons interact and lead to the formation of the Quark-Gluon Plasma, which existed in the early universe. We address the issue of obtaining the initial conditions for high-energy nucleus-nucleus collisions. A computer program is used to generate the gluons and the resulting distributions are analyzed. We hope to use this information in simulations to model the sequence of events in nuclear collisions for the understanding of Quark-Gluon Plasma thermalization.

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n Progress on Biofuel Pellet Research

We update progress on research on biofuel pellets made from regional crop residues. Focus is on optimizing binder and encapsulant. Recent work focused upon plant-based binders, such as "glue" made from rice or berries. Near-future work will include characterization of pellet durability and abrasion resistance, energy content upon combustion, gas emissions, ash content and composition, water resistance and resistance to attack by mold, bacteria ("rotting"), termites, and vermin. The ultimate goal is to allow biomass now wasted to be used as a commercial fuel, hence addressing the nation's energy needs and economic development. This work is supported in part by National Science Foundation Grant EPS-1003970, and a Judd Hill Foundation Grant through the ASU Environmental Science Program.

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n Complex Finance and its Role in the 2008 Financial Crisis

Complex financial instruments have tremendously impacted the United States financial sector. With the early profitability of complex financial instruments, financial companies were eager to expand complex financial industry. Driven by the tech bubble of the 1990s and the housing bubble in the early to mid-2000s, profits from complex financial instruments greatly increased, thereby increasing demand for additional services. However, with the advent of the mortgage-backed security and increases in the number of subprime mortgages issued, the risk associated with complex financial instruments increased. When many subprime mortgages began to default, the complex financial instruments backed by subprime mortgages substantially lost value.

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n Sportsmanship vs. Winning in Youth Sports

Sportsmanship can be viewed as conduct related to fairness, respect for one's opponent, and graciousness in winning or losing. The idea of sportsmanship and fair play is frequently replaced by the importance of winning at all costs. Youth programs are developing into highly competitive leagues with win-at-all-costs actions. Three out of four youth athletes drop out of organized sports by the age of 13, with an over-aggressive coach being the number one reason. This paper discusses the importance of creating a positive environment in order to teach children about sportsmanship. Equally important is the proper training and education of youth coaches and parents.

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n Bioproduction of a Thermostable Enzyme for Processing Arkansas Sugar Beets

Production of sugar beets in Arkansas is part of a regional strategy to produce advanced biofuels in the Mid-South Delta. Expanded sugar beet production will generate millions of tons of wet pulp as a processing residue that will have to be dealt with. The overall goal of my research is to establish the utility of a naturally thermally-tolerant pectinesterase for innovative application in processing the pectin-rich beet pulp. I hypothesize this enzyme can modify pectin structure within beet pulp to reduce its water-holding capacity. Enzyme treatment can thereby reduce energy inputs to dry pulp and thus lower costs for processing. I will present current work to develop a bioproduction platform for this thermostable enzyme using the yeast *Pichia pastoris*.

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n Perceptions of Stalker's Personality, Motivation and Stopping Pursuit as a Function of Stalker Gender and Stalker Age

The goal of this research was to examine how gender and age influence perceptions of why stalking occurs. Our past research had open-ended questions and allowed participants to give us their own responses to the scenarios presented in the survey. The findings we received from that survey showed significant differences between gender in personality profile, motivation and effort needed for the pursuer to stop romantically pursuing. In this study, we investigated further into why participants answered the way they did.

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n Update: Cadmium Telluride and Indium Sulfide Film Electrodeposition

We update reports on research on electrodeposition of cadmium telluride and indium sulfide films for device applications. These materials are potential solar cell materials. Electrodeposition offers low-cost, easy scale-up, and easy monitoring and control. The presentation will include cyclic photovoltammetry data for films of these two materials being electrodeposited from solutions of cadmium, tellurium, indium and sulfur species. It will also present various data for the films themselves, for example, X-ray diffraction, optical absorbance spectroscopy, scanning electron microscopy and electrical characterization of first attempts at forming solar cells from them. This work is jointly funded by National Science Foundation Grant EPS 1003970 and NASA Grant NNX09AW22A.

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n Educational Narratives of At-Risk Students

As the education gap widens, educators are hard-pressed to discover methods of enhancing student success. Low income students, the traditionally disadvantaged or first-generation college students are labeled “at risk students.” Research indicates this demographic of students have higher drop-out rates, less motivation in the classroom and lower standardized test scores. Yet, despite all odds, some at-risk students defy expectations and engage in a higher educational experience. Previous research focuses on the alignment of systemic factors that creates the contexts in which these at-risk students and their behavioral patterns exist. This study departs from current research by refocusing on the communicative factors that enable students to break out of these at-risk environments.

Faculty Mentor: Dr. Chris Harper, Communication Studies, charper@astate.edu

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n Judd Hill Irrigation Research

This documentary video provides a brief overview of Dr. Tina Gray Teague’s research at the Judd Hill Plantation in Poinsett County. The footage focuses on Dr. Teague’s work with irrigation techniques.

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n Construction of Generalized Minimum Aberration Designs of 36, 40, and 44

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. I will be working with non-regular, fractional factorial designs, which allows more variability. My research will focus on construction of optimal designs 36, 40 and 44 runs using graphic processing unit (GPU) technology, with a primary objective of providing, for the first time, comprehensive design tables for the best 36, 40 and 44 runs designs available. Creating design tables makes it possible for engineers and scientists to plan experiments for any combination of runs and number of variables to be studied.

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n The Prevalence of Supermarkets Among Poor and Wealthy Areas in Northeastern Arkansas: A Comparative Study

This study explores the differences in food selection and obesity rates across poor and wealthy counties in Northeastern Arkansas. The differences in food selection cause some areas to become food deserts, resulting in a plausible increase of obesity rates in low income areas. The central objective of this study is to explore the link between the existence of supermarkets and obesity rates in wealthy and poor counties. There are also disparities in the prices of foods among the two areas. The research entails employment of mixed methods that include analyzing county-level data on key socioeconomic indicators, and field survey of the grocery stores in the Jonesboro area.

Faculty Mentor: Dr. Veena Kulkarni, Sociology, vkulkarni@astate.edu

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n The Motion of Particles with Dynamic Adhesive Contact

We consider a viscoelastic rod that falls and bounces between two stationary rigid surfaces. This dynamic contact problem satisfies Signorini’s contact conditions, which can be interpreted in terms of complementary conditions. The motion of the viscoelastic rod is modeled by a third-order, partial-differential equation, where the midpoint rule and the Implicit Euler method is applied in elasticity and viscosity. Numerical solutions are computed using time discretization over the time domain, finite element method over the spatial domain, and Implicit Euler method in the complementary conditions. The numerical solutions are computed by solving a linear system and applying the complementary conditions. Boundedness of energy is investigated in the formulation of these solutions.

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Poster Abstracts

Listed in alphabetical order by lead presenter

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A Symposium of Research, Scholarship & Creativity



Acosta, Walter – Molecular Biosciences, Graduate
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n Plant-Made Pharmaceuticals RTB Fusions as a Novel Strategy for Delivering Lysosomal Enzyme Therapeutics into Mammalian Cells

RTB, the non-toxic, carbohydrate-binding subunit B of ricin, mediates endocytotic uptake into mammalian cells and trafficking to lysosomes or ER of associated proteins or “payloads.” In order to test the potential of RTB to deliver lysosomal enzyme replacement therapeutics, RTB was genetically fused to human L-alpha-iduronidase (IDUA), the enzyme that is deficient in Hurler Disease patients. Gene constructs encoding RTB:IDUA were developed and expressed in leaves of *Nicotiana benthamiana* plants using an *Agrobacterium*-mediated transient expression system. The recombinant RTB:IDUA fusion products were purified and characterized for RTB lectin activity, human IDUA enzyme activity, and the ability to direct uptake into human cells.

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n Critical Thinking and Global Perspectives: Assessment Tools and Techniques

The Shared Governance General Education Committee at ASU recently voted to relabel critical thinking and global perspectives as university, campus-wide student learning goals rather than expected outcomes of general education. Critics of multiple choice exams will be intrigued with the faculty recommended Critical Thinking Assessment Test (CAT), a reflective writing tool administered and graded by faculty. ASU faculty, trained in scoring the CAT, will assist in the demonstration. Visitors to our presentation will complete surveys indicating their interest in ASU’s adoption of the instrument. The Global Perspectives Inventory, currently used by the COE, will also be available for perusal by faculty.

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Agee, Jamie – Family Nurse Practitioner, Graduate
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n The Prevalence of Human Trafficking in Arkansas

Background: Sex trafficking is a criminal trade that uses slavery in the exploitation of children and women for forced commercial prostitution. It involves rape, multiple sexual partners, physical/mental trauma and STDs. The medical/psychological problems make it vital for nurse practitioners (NPs) to appreciate at-risk populations, know the warning signs and make proper referrals. Purpose: To explore the prevalence of sex trafficking in Arkansas for 2008 and provide a basis for future research. Method: Data was obtained and analyzed using law enforcement/state agencies in Arkansas. The data contributes to the understanding of the existence of sex trafficking in Arkansas. Conclusion: Results and discussion can be addressed upon completion of this study.

Faculty Mentor: Dr. Cathy Young, Nursing, clyoung@astate.edu

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n **Total Nutrient Loading in the Cache River watershed**

This semester, I will be analyzing dissolved and total nutrients (NO₂, NO₃, PO₄) that will be collected throughout the year at different watershed locations. I will use what is collected to examine the seasonal, spatial and temporal aspects of the nutrient dynamics of the lower Cache River watershed.

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n **Purification of the Prenylated Resveratrol Analogs Arachidin-1 and Arachidin-3 from Hairy Root Cultures of Peanut by High Performance Counter Current Chromatography**

The occurrence of resveratrol and its prenylated analogs arachidin-1 and arachidin-3 in peanut has been linked to exposure to biotic and abiotic stresses. To study the biosynthesis and biological activity of these polyphenols, we established hairy root cultures of peanut and studied the effect methyl jasmonate and cyclodextrin had on production of these compounds. Fractionation of ethyl acetate extracts from the culture medium, utilizing High Performance Counter Current Chromatography (HPCCC), produced arachidin-1 and arachidin-3 fractions with high levels of purity as determined by HPLC. Our results highlight the benefits of this scalable bioproduction and purification system for producing these natural products, and discovering bioactive compounds with potential uses in human health.

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n **Detection and Genetic Characterization of Salmonella by Bead-Based Suspension Flow Cytometry**

Salmonella is the leading cause of foodborne illnesses in the United States. Recent outbreaks associated with Salmonella-contaminated foods and related economic loss show the importance of timely control of this harmful pathogen. This study developed a sensitive, rapid and specific bead-based suspension array to detect and identify Salmonella serotypes by identifying their characteristics. In this study, bead-based suspension array of high multiplexing ability was coupled with PCR amplification to detect Salmonella with high sensitivity and specificity. Mixtures of 7 different types of beads, each functionalized with a different oligonucleotide probe designed from Salmonella genes, were used as a bead-suspension array platform for detection of Salmonella using DNA hybridization.

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n **Bio-identical Hormone Replacement Therapy**

Bioidentical hormones (BHRT) have been under debate since the article in Women's Health Initiative (2002) over synthetic hormones. There is a huge difference in synthetic hormones and BHRT that most healthcare professionals do not even understand. The purpose of this research is to break down BHRT, show if menopausal symptoms were improved and determine if there were any adverse effects. The research performed will establish if there was an improvement as the levels of progesterone and estrogen increased with the objective data collected from each patient. If providers are educated on the ways of prescribing BHRT and how to monitor the dosages, then they will have an alternative method of care.

Faculty Mentor: Dr. Lisa Waggoner, Nursing, lwaggoner@astate.edu

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n **Development of an In Vitro Assay to Evaluate Uptake of Human Glucocerebrosidase into Mammalian Cells**

Gaucher's disease is a lysosomal enzyme disorder in which the enzyme glucocerebrosidase (hGC) is deficient. The B subunit of ricin (RTB), which binds carbohydrates, has been shown to gain access into the cell without the aid of high mannose receptors (mechanisms used by current treatment). RTB was genetically fused to hGC and expressed in tobacco plants to be used as a more efficient and inexpensive enzyme replacement therapy. An in vitro protocol was designed to assess the effective uptake of this plant-derived enzyme and to show enzymatic activity in Gaucher fibroblasts (enzyme deficient) after being treated with the recombinant protein. Normal and untreated Gaucher fibroblasts were analyzed to confirm the accuracy of the assay.

Faculty Mentor: Dr. Carole Cramer, Arkansas Biosciences Institute/Biological Sciences, ccramer@astate.edu

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n The Recruitment and Retention of Mathematics and Computer Science Majors

By only examining statistical data, it seems undergraduates are making strides toward overcoming their under-representation in STEM majors. However, statistics do not tell the entire story. Qualitative studies suggest STEM undergraduates still face barriers to success. Therefore, the research described will focus on exploring undergraduate STEM departments and the factors that influence the students to choose and pursue STEM degrees. By examining the educational practices within these departments and linking those practices to students' perceptions and experiences, the study hopes to reveal successful practices for producing undergraduate STEM majors. The poster will show how research was collected and analyzed and highlight results from the data analysis of the results.

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n What's All The Fizz About?

For Create @ State, my project will focus on the use of Management Information Systems within major companies. I will focus on the information systems of PepsiCo and Coca-Cola. These companies are more than 20 spaces apart on the Fortune 100 list. They are involved with similar products, so I would expect them to be closer. I will narrow the product list to beverages and research how PepsiCo and Coca-Cola use information systems to promote and produce these products. While collecting my data, I hope to find that PepsiCo has a better understanding of using information systems in production and promotion of a product. This will explain why PepsiCo has a higher revenue and is ranked higher than Coca-Cola on the Fortune 100 list.

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n Give Me A Voice: The Effects of Domestic Violence on Children

This presentation will address the effects domestic violence has on children of both genders, the effects of violence at different ages, the frequency of children contacting 911 to report violence occurring in their home, and where children can obtain support if they are living in a violent environment.

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n Generational Effects of Abuse

This presentation will address the cycle of how violence continues, which in turn can affect generations within families. Violence is a learned behavior and occurs in cycles. A child who has grown up in a home with abusive parents or guardians is more likely to accept violence as a "normal" way of life. When the child becomes an adult and has their own family, they have a greater risk of seeing violence and abuse as "normal."

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n Scared Sober? Evaluating the Effectiveness of Drug Prevention Messages Over Time

This study examined individual reactions to various drug prevention/anti-drug messages used in advertising campaigns and billboards throughout the US. The study was broken into three phases over the course of six weeks where participants were shown a series of advertisements and asked to rate each as to its effectiveness. 96 students at Arkansas State University participated in all three phases. Two hypotheses were formulated at the beginning of the study: (1) There would be a difference in the tone of the advertisement and how participants rated the effectiveness of both positive and negative messages; and (2) the participant's reactions would change over time with multiple exposures to the messages. Findings concluded that Hypothesis 1 was correct while Hypothesis 2 indicated no differences.

Faculty Mentor: Dr. Sharon Davis, Psychology and Counseling, sharondavis@astate.edu

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n Information Technology Dynamics of Ford Motor Company

Ranked as the tenth overall corporation in the 2011 Fortune 500 list, Ford Motor Company has many reasons for success since being formed in the summer of 1903. My goal for this project is to discover how Ford Motor Company is utilizing new information technology to consistently stay on top in the automotive industry. With technology changing every day, the information systems at Ford must be innovative, evolving to achieve the goals set by the corporation. The CIO of Ford Motor Company, Nicholas Smither, has a major role in the continuous accomplishments of the company while dealing with changes and having to adjust to them and was once quoted in an article, stating "a career in IT (information technology) is a career in change management." (Johnson).

Faculty Mentor: Dr. Jollean Sinclair, Computer and Information Technology, jsinclair@astate.edu

Cagle, Grant – Biology, Undergraduate
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n Investigating Oral Nicotine Consumption and Effects on the Estrous Cycle of Female Sprague-Dawley Rats

Following 10 days of baseline water delivered in five bottles in the home cage, female adolescent Sprague-Dawley rats were presented with four bottles of nicotine (20 µg/ml) and one bottle of water for 16 days; animals in the control group continued drinking water. Estrous was monitored for seven days during baseline and 16 days during the exposure period for all rats. Phases of estrous were determined each day by the type of cells present in the sample. There were no initial differences observed in consumption during the baseline period, but significantly less water was consumed by animals introduced to nicotine. Estrous between animals in both groups were similar. Such findings suggest continuous oral nicotine exposure did not readily alter estrous for this duration and concentration of nicotine.

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Carlisle, Laura – Family Nurse Practitioner, Graduate
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n Pediatric Vaccination Adherence

Immunizations have shown to be a safe, effective primary prevention of many highly contagious and potentially life altering or deadly diseases. Immunizations have numerous benefits to the optimal health of patients, but many parents are choosing to not immunize their children based on lack of education on the safety or need of immunizations. This project is being conducted to identify parents' self-reported, non-adherence behaviors of pediatric vaccinations and common misconceptions of pediatric vaccination adherence. Participants in the research will complete a questionnaire that will focus on common misconceptions and barriers regarding pediatric vaccinations. This will help increase patient understanding of the importance and purpose of vaccination adherence.

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Lewis, Latosha – Social Work, Undergraduate
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n If It's "Just a Smack," Don't Look Back

This presentation will address the importance of knowing the warning signs for relationships that turn abusive, how to access help and the steps to successfully get free of abusive relationships.

Faculty Mentor: Dr. Kathleen Carrick, Social Work, kcarrick@astate.edu

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n The Effects of Hippotherapy on Motor Performance In Individuals with Disabilities

The purpose of this study is to test if the addition of hippotherapy to a traditional physical therapy program will result in a greater functional improvement in the individual subject's performance when compared to traditional therapy alone. Veterans referred through the ASU Beck PRIDE Center will be randomly assigned to Group A or Group B. Subjects in Group A will participate in hippotherapy and traditional physical therapy for 15 weeks, while Group B will participate in traditional physical therapy for 15 weeks. Post-treatment, subjects will receive the other treatment regardless of if they began in Treatment Group A or Treatment Group B. Measurements of motor performance and function will be analyzed following each session.

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n Red Flags in a Domestic Violence Relationship Among College Campuses

This presentation will address the “red flags” or warning signs associated with dating violence on college campuses. We will be using a topography map with red flags like you would see on your portable global positioning system in your automobile. We will be handing out interactive questionnaires for participants to evaluate their own relationships.

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n Erectile Dysfunction as a Factor in Noncompliance with Antihypertensive Medications

Hypertension is estimated to affect approximately 74.5 million individuals in the United States. Patient compliance with antihypertensive medications is a significant problem. Male erectile dysfunction (ED) has been linked to the use of antihypertensive medications and may impact one's choice to remain on the medication. The purpose of this descriptive study was to determine if the development of erectile dysfunction with antihypertensive medications is a barrier to medication compliance in male patients in Northeast Arkansas. Convenience sampling was used to target men with a history of hypertension. A questionnaire was administered to determine if ED affected their compliance. Results from this study can provide insight into factors associated with medication noncompliance, such as ED.

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Denley Humber, Pamela – Family Nurse Practitioner, Graduate
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n Does APN Directed Care Decrease Hospital Readmission Rates for Heart Failure Patients?

The incidence of heart failure (HF) is increasing at a rate of more than 550,000 new cases each year, with many of these patients requiring recurrent and frequent hospitalizations. Recently passed healthcare reform legislation includes a provision to cut reimbursements for HF readmission within 30 days of discharge starting in 2012. This study was designed to compare hospital thirty day readmission rates of HF patients who received advanced practice nurse care to the Medicare national average of thirty-day hospital readmission rates.

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n Parent Perceived Barriers to Childhood Immunizations within the Arkansas Care Clinic

Immunizations are a component of preventative healthcare. Infectious diseases can be prevented by immunizing children at appropriate times. Often children are behind on immunizations, increasing the spread and risk of infectious diseases. This study will examine parent-perceived barriers to childhood immunizations. A convenience sample of parents will be asked to complete a questionnaire regarding self-identified barriers faced in the quest of completing requirements of childhood immunizations. Results of this study are pending analysis but will help in identifying the barriers parents face when having their children immunized. The information obtained will help in determining ways to decrease the parent-perceived barriers and increase the rate of childhood immunizations.

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Enger, Chris – Physical Therapy, Graduate
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n Description of Predisposing Factors Associated with Shoulder Pathology in Age Group Swimmers

The scapula is the only link between the trunk and upper extremity. Therefore, it plays a vital role in all upper extremity activities. Overhead athletes such as swimmers are at an increased risk for developing shoulder impairments secondary to overuse injuries.

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Fust, Jordan – Athletic Training, Undergraduate

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n **Effect of Two Types of Tape on Ankle Range of Motion**

This project will compare the difference in range of motion at the ankle joint when using two types of athletic tape. Participants will be asked to sign a consent to participate form in order to comply with IRB protocol. Johnson and Johnson Coach tape will be applied to one ankle while Andover PowerTape will be applied to the other. Range of motion measures will be taken as soon as the tape is applied and after a full day of daily activity. Comparisons will be made between the two types of tape as well as between normal motion and tape restricted motion. Findings from this project have the potential to influence future preventative injury care in the athletics arena.

Faculty Mentor: Dr. Amanda Wheeler, Health, Physical Education and Sport Sciences, awheeler@astate.edu

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n **The Effects of Antidepressants on Depression Symptoms**

The objective of the research was to determine if clients had a decrease in depression symptoms after taking an antidepressant for four weeks. Twenty-five clients were surveyed at the initial time of diagnosis of depression. Of the 20 clients surveyed, 14 clients demonstrated a decrease in sadness, anger and difficulty sleeping. Ten clients saw a decrease in anxiety. Eighteen clients saw an increase in motivation. At four weeks many clients saw a decrease in many of their depression symptoms numerically, even though no results were statistically significant. The study was limited by a small amount of study participants and only one clinical site being used. Results did show possible decrease of depression symptoms at four weeks after starting an antidepressant.

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n **Effects of Fatty Acids on Geomyces destructans Growth and Sporulation**

Geomyces destructans is the causative agent of White-Nose Syndrome (WNS) and the associated death of more than five million North American bats. Lipids have been implicated in many disease processes. The objective of this study is to determine if host lipids are involved in *G. destructans* pathogenicity. Specifically, we sought to determine the effects of common fatty acids on the growth and sporulation of *G. destructans*. We added FFAs to growth media and inoculated with *G. destructans*. Colony growth was analyzed by total area, and sporulation efficiency was determined with the use of a hemocytometer. We found that 16:0, 18:0, 18:1, and 18:2 FFAs reduced fungal growth, while 14:0 and 18:3 had little to no effect on overall growth or sporulation.

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Gipson-Ade, Amy – Family Nurse Practitioner, Graduate

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n **Perspectives on Aggressive Acne Treatment**

Recent studies have shown the effects of acne spread well beyond the physical lesions; psychological and social implications associated with this condition can be equally severe. Despite its prevalence and the billions of dollars spent on treatment, acne is not appreciated by many clinicians, and only a small amount of cases are treated by non-dermatologists. With access to specialists such as dermatologists becoming more difficult, as well as less affordable, acne, for most patients, particularly those with mild-to-moderate forms, could easily be managed in the primary care setting by physicians and advanced practice nurses.

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Gorman, Selena – Family Nurse Practitioner, Graduate

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n **HPV And Colorectal Cancer**

Is there a link between HPV (Human Papilloma Virus) and colorectal cancer? This study will try to link the two and determine if there is a need to administer rectal pap smears. Patient's age group and diagnosis will be determinants of evaluation. A retrospective analysis looking at charts of patients that have come in for colonoscopies will be reviewed, looking for presenting history, symptoms and results of procedure. Anal pap smears are found to be very cost effective in detecting abnormal lesions in high risk patients. In conclusion, if providers can use this tool for prescreening and get patients to be willing to have it done, they may be able to prevent or slow the progression of this disease.

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Guest, Leigh Ann – Family Nurse Practitioner, Graduate

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n Perceptions of Parenting

Past studies demonstrate the effects of parenting on the behavior of children. Parenting style differs between fathers, mothers, single, dual, young or older parents. Studies reflect a child's perspective, but few delve into parents perceptions of parenting. The purpose of this study is to discover parent's perception of parenting style. The convenience sample consists of parents 18 years and older. The Parental Authority Questionnaire (PAQ) was used; it is relevant to both fathers and mothers. This questionnaire was used to collect data in two health clinics of the rural Arkansas Delta. Pending data will reveal authoritative, authoritarian, permissive or rejecting-neglecting behavior of parents. This information will be useful to enhance parenting skills.

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Guthrey, Caleb – Biology, Undergraduate

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n Effect of Blueberry Diet on Inflammation in Ovariectomized Rats

Chronic inflammatory diseases are one of the main causes for cardiovascular problems facing society today. While there are products on the market to combat the negative effects of inflammation, often these products result in side effects that can themselves be harmful. Therefore, it is necessary to find safer and more natural ways to combat chronic inflammation. The objective of our project is to determine the effects of a blueberry diet on inflammation using an ovariectomized rat model of cardiovascular inflammation. Specifically, we measured the regulation of a gene linked to inflammation (cyclooxygenase-2). This will provide useful information about whether blueberries might provide a safe, yet effective, way to battle chronic inflammation.

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n Developing and Using General Education Block Exams

Establishing psychometric properties of a general education exam allows the department to maximize use of the test scores to predict future success in the major. Using a pre-post exam from General Chemistry I, we will present methods and findings from reliability and validity analysis. Techniques for conducting an item analysis and creating a difficulty/discrimination index will be presented. Suggestions for writing effective multiple choice questions and constructing response items will be provided. Scores from post-tests will be presented in relation to undergraduate degree earned and major and overall GPA. Suggestions for improving block exams and maximizing the use of results will be provided.

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**n Characterizing Long-term Voluntary Nicotine Consumption:
The Relationship Among Solution Concentration, Estrous Cyclicity and Sera Cotinine**

We administered oral nicotine solutions using an established multiple-bottle approach (Biondolillo and Pearce, 2007), assessed the impact of oral nicotine on the rat estrous cycle and detected cotinine, a biomarker of nicotine, in sera. In two studies, adult (N = 32) and adolescent (N = 20) Sprague Dawley rats were exposed to four bottles of nicotine (15 and 30, or 20 g/ml) and one bottle of water for 16 days; animals in the control groups received water only. Vaginal cell samples were examined for estrous stages using DIC microscopy. Sera were analyzed for cotinine using a competitive ELISA. Adolescent rats offered one nicotine solution consumed more nicotine than the adult rats offered two solutions. No immediate disruption of estrous was observed. Detectable levels of cotinine were obtained in sera.

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n **What Happens to Children Who Have Been Sexually Assaulted?**

The purpose of our project is to raise awareness about the epidemic of sexual assault. We address the issue of sexual assault on children in the state of Arkansas and introduce local and statewide resources to help these children with complications of sexual assault, including pregnancy and STDs.

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Hendrix, Amanda – Family Nurse Practitioner, Graduate
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n **Comparing HbA1c Before and After Insulin Pump Therapy**

This retrospective study in a health care setting was to compare previous HbA1c on multiple injections to HbA1c after an insulin pump was substituted. The purpose is to see if insulin pumps make a greater difference in controlling diabetes. Patients need better education on the importance of controlling diabetes and determination of which method works best for them.

Faculty Mentor: Dr. Lisa Waggoner, Nursing, lwaggoner@astate.edu

Horton, Jessica – Middle Level Math and Science Education, Undergraduate
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n **Pizzazz and Power: Studying Energy in Middle School**

A presentation of a curriculum map (linking standards, lessons, assessments, modifications, etc.) demonstrating powerful ways to think about and teach “Energy” in a dynamic interdisciplinary fashion in the middle grades while still adhering to the new Common Core State Standards. Disciplinary connections include science, mathematics, speaking and listening, writing, reading and art.

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n **Reality Television: A Study Conducted on the Types of People Attracted To Viewing Reality Television**

There has been an expansion of reality television programming in recent years. The average individual can often say he/she has viewed a reality television program at least once. Some individuals have become so intrigued with this form of entertainment that they take the next step of comparing their situation to some of the material they view. Reality programming has so many different categories that are focused on to draw in viewers. Some programs focus on family involvement while others center on dramatic experiences. This study is designed to provide details on what types of people are more likely to watch different reality television shows. This study is of note because it will show what types of people are viewing enough reality television programming to keep it on the air.

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n **Influence of Social Media to College Students**

In today's society, the use of the internet is always growing and evolving, especially the use of social media. This project covers how college students use social media and the way it affects their lives. It focuses on the time dedicated to social interaction and how social media is used for gathering and sharing news. This project will also focus on how emotions and habits are affected by the constant use of these internet sites and if the internet has become a crutch for students.

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▢ **APN Telephone Follow-up in Heart Failure Patients**

Heart failure is the leading cause of hospital admissions for people over the age of 65. Weight gain because of fluid retention may be one of the first signs of an impending exacerbation of heart failure. This study will examine if advanced practice nurse telephonic follow-up after hospitalization has an influence on the weights of heart failure patients. The 10-15 consenting patients admitted to the hospital with a diagnosis of heart failure exacerbation will be weighed upon discharge and be informed that the advanced practice nurse will monitor their weight by telephone call 12-14 days post-discharge. Correlational analysis will be utilized to compare the weights. Post-discharge telephonic follow-up may suggest that it is a motivating factor for improved heart failure self-care.

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▢ **The Impact of a Structured Exercise Program on Health and Functional Performance Parameters on a Cohort of Obese Children**

The childhood obesity rate of occurrence has tripled in the last 30 years and affects an estimated 20% of the population between six-11 years of age. Obese children are more likely to have risk factors for cardiovascular disease and metabolic syndrome later in life, and in a population-based sample of five- to 17-year-olds, 70% of obese youth had at least one risk factor for cardiovascular disease. Considering these facts collectively emphasizes the importance of exploring interventions to help offset the problems associated with childhood obesity. The purpose of this study was to determine the impact of a structured exercise program on health and functional performance parameters on a cohort of obese children.

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▢ **Patient Education and Increased Compliance to Flu Vaccinations**

The Center for Disease and Control (CDC) has recommended that all persons older than 6 months should be vaccinated unless a severe egg allergy persists. Barriers to compliance to influenza vaccination exist. We hypothesized that Sample A will have a much higher compliance rate than sample B. To determine the effectiveness of education in regards to the influenza vaccination, 25 adult subjects were provided education regarding the influenza vaccination before a vaccination was offered. In sample B, 25 subjects were offered a vaccination with no education. After vaccination was offered to both groups, a questionnaire was given to each subject. In sample A the compliance rate was higher by X% than in sample B. It is likely that increased education can increase compliance to vaccinations.

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▢ **Jamaica: A Look at Social Work**

Jamaica is a country located on an island in the Caribbean, south of Cuba. The population of Jamaica is 2,868,380 (The World Factbook, 2011). Jamaica is a country of sugarcane, bananas, coffee, rum, citrus, yams, goats and tourism. This presentation will explore Jamaica and include a brief history, a demographic profile, historical, political and religious information. The presentation is meant to take a deeper look at the country by placing special focus on the role of Social Work within the country.

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▢ **The Occurrence of High-Risk HPV in the Adult Female Client: Is There a Higher Prevalence among African American Females vs. Caucasian Females?**

Cervical cancer, primarily caused by the Human Papillomavirus (HPV), is one of the most common cancers affecting the female reproductive organs. Despite efforts to reduce the incidence of cervical cancer through screening, the number of cases diagnosed each year remains constant. Women at greatest risk are adult females aged 21 to 29. This study will compare the prevalence of HPV in African American females vs. Caucasian females ages 21-29. A retrospective chart review will be performed in a primary care clinic in Jonesboro, Ark. The study will include convenience sampling of 50 clients who received Pap cytology screening in the clinic between January 1, 2011, and January 12, 2012. By identifying the prevalence of HPV, health providers can increase awareness through education and screening.

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n Hippotherapy vs. Traditional Physical Therapy for Improving Motor Performance in Patients with Autism

Autism is a developmental disorder that affects nearly one in 110 children in the US. Symptoms of autism may vary greatly in severity and can include difficulty processing sensory information, decreased coordination, delayed gross motor development, decreased ability to function in social settings, a decreased ability to motor plan and speech deficits. Physical therapists have the skills necessary to address many of the symptoms associated with autism, allowing these children to achieve their highest potential. Research is currently being conducted by faculty and students from the Physical Therapy Department to determine if hippotherapy is more effective than traditional physical therapy in treating children with a diagnosis of autism.

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n Production of Specialized Metabolites in Hairy Root Cultures of Scutellaria Lateriflora Treated with Cyclodextrin and Methyl Jasmonate

The plant, *Scutellaria lateriflora*, produces bioactive compounds exhibiting anti-cancer properties. In order to develop a bioproduction system for these compounds, we developed hairy root cultures of *S. lateriflora* using *Agrobacterium rhizogenes* and studied the effect of methyl jasmonate (MeJA) in combination with cyclodextrin (CD) on production of these specialized metabolites. Thirty-day-old hairy root cultures were treated with 0.75, 7.5 or 15 mM of CD alone or with 100 μ M of MeJA. The levels of *Scutellaria* flavonoids baicalin, baicalein and wogonin did not vary in the roots or medium after 24 hours with any treatment. However, several novel compounds were induced upon treatment with MeJA and CD. Results suggest this strategy could be used to identify new bioactive compounds in *Scutellaria*.

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n Pyramiding H⁺-Pyrophosphatase and Myo-Inositol Oxygenase to Enhance Plant Growth and Stress Tolerance in Arabidopsis

Through the over-expression of a plant proton-translocating pyrophosphatase (H⁺-PPase), the Gaxiola Laboratory has engineered plants that can grow well in toxic levels of salts, develop robust root systems and resist drought; the Lorence Laboratory developed *Arabidopsis* with elevated vitamin C content via over-expression of a myo-inositol oxygenase (MIOX4). These high vitamin C lines are more tolerant to stresses and environmental pollutants compared to controls and displayed enhanced growth of both aerial and underground tissues. In preliminary work we have made reciprocal crosses between *Arabidopsis* H⁺-PPase and MIOX4 over-expressers and have identified two lines that are positive for both transgenes.

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n Drought Forecast in Northeast Arkansas

Drought is a prolonged period of low precipitation that can be injurious to crops. Arkansas is an agricultural state and has been considered a wet because of climate changes, any prolonged drought period will bring losses not only to the farmers but to the whole state economy. This research is based in northeast Arkansas, climate division 3. Similar research has been done in South Carolina, where drought was predicted by using a conditional residual resampling technique. In that research, stochastic approaches for estimating uncertainty were applied to drought index predictions. Similarly, drought indices and climate information is being used in this research. The data range from 1950 to 2011. The expected outcome is the prediction of drought in the desired area in Arkansas.

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n Does Socioeconomic Status Affect Teenage Pregnancy Rates?

Teenage pregnancies are associated with lower educational levels, higher rates of poverty and poorer life outcomes. Nine billion dollars are spent annually in public costs directed toward teenage pregnancy. The purpose of this study is to determine if there is a correlation between teenage pregnancy rates and socioeconomic status. A retrospective study was performed via convenience sampling of charts that contain pregnancies from females aged 12-20 years old. The results of this study are intended to teach teenagers, parents and teachers that teenage pregnancy affects society as well as the teenager. Teachers and parents can assist in decreasing the pregnancy rates by educating teenagers about pregnancy, sexually transmitted infections and prevention.

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n Comparison and Contrast of New Solar Cell Materials

Copper indium disulfide, CuInS₂, indium (III) sulfide, In₂S₃, and copper zinc tin sulfide, Cu₂ZnSnS₄, have received recent attention as new solar cell materials because of their low toxicities. Although the elements in the latter are all abundant and low cost, indium is rather scarce and expensive. The presentation will compare and contrast these materials in terms of both potential solar cell efficiency and effectiveness, as well as cost, hazard, environmental impact and ease of synthesis, and also survey work being currently conducted by the authors on deposition of films of copper indium disulfide and indium (III) sulfide. This work was supported in part by the National Science Foundation Grant EPS-1003970 and NASA Grant NNX09AW22A.

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n Ukraine

Poster regarding a brief history, demographic profile, historical, political and religious influences and social work services within the Ukraine.

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n Getting Away From Abuse

We are trying to raise awareness of the steps involved in escaping an abusive partnership. This is an interactive poster presentation focused on developing a plan to help someone trying to escape from domestic violence.

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n Reading Levels of Healthcare Textbooks and Student Reading Levels in a Physical Therapist Assistant Program

The purpose of this study was to determine the reading level of textbooks used in the PTA program and compare it to the scores of students on the Nelson Denny Reading Test (NDRT). A mean score was calculated from NDRT scores of 164 students from the PTA program. Multiple reading level formulas were used to calculate the reading level of five textbooks. The mean reading level for NDRT was 14.7 (grade level). The range of scores was 9.8 to 18.9. Reading levels obtained on textbooks were not consistent between methods; yet, there was consistency when ranked by difficulty. Comparing the Gunning Fog method to the scores of the NDRT, three or five textbooks were above the average reading level of students. This study asked whether or not reading levels of textbooks should be considered prior to adoption?

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n CZTS Based Thin Film Solar Cells Fabricated by All-Solution Processing and Pulsed Light Crystallization

Solar cells are a viable solution for the production of environmentally friendly energy. In this project, we are developing a thin, film-based photovoltaic material that is highly efficient in optical properties and manufacturing cost. The thin film solar cell is composed of Copper, Zinc, Tin and Sulfide or "CZTS," and it contains chemicals that are both abundant and non-toxic. A single step electro-deposition method that provides all constituents from the same electrolyte will be investigated. Next a sintering process will follow to form a CZTS material that is covalently bonded and crystallized. In this post-heat treatment, a home-made, intense-pulsed light system will be utilized for rapid thermal processing.

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n Biological Air Filtration System Technology

This project explores the disinfection of bacteria using ultra-violet (UV) light with and without titanium dioxide (TiO₂) as a photocatalyst. UV light emitting diodes (LEDs) are powered by a variety of electronic methods utilizing timing, pulsing and controlling of the LED output to deliver different combinations of different light intensities of different wavelength photons to irradiate the bacteria. The resulting data is then examined, and various changes are made in order to increase efficiency of the photolysis and photocatalysis. This poster will describe the various electronic circuits designed for the project and the resulting irradiation patterns.

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n Reliability of Rubrics used in Music Assessment

Assessing musical performance presents the unique problem of breaking into components that typically are evaluated from a holistic perspective. Judges' ratings of performance juries of ASU music majors were examined for psychometric properties, including inter-rater reliability of rubric scores and construct and content validity of the rubric itself. Recommendations for use of the rubric, evaluations of rubrics used by other institutions, and improvements to the tool will be provided

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n Is Weight Related to a Higher or Lower HgbA1C in Type II Diabetic Patients?

Is weight related to a higher or lower HgbA1C in Type II diabetic patients?

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n Effects of Exogenously Applied Abscisic Acid in Modulating Foliar Ascorbate Content in Arabidopsis Thaliana

Ascorbic acid (AsA, vitamin C) is the most abundant water-soluble antioxidant in plants. Despite its importance in the plant, factors regulating its metabolism are not fully understood. Plant defenses are dependent on hormones such as abscisic acid (ABA), which has been shown to improve adaptation to environmental stress. We have previously shown that jasmonates modulate AsA content in Arabidopsis. In order to gain a deeper understanding of other AsA regulators, we have compared baseline AsA levels in ABA and ethylene mutants and have performed experiments to test the impact of exogenous ABA on AsA content in ABA signaling mutants. Our results show that ABA appears to depress AsA in wild type but not in the Arabidopsis abi1-1 and abi3-1 mutants, suggesting that ABA regulates AsA metabolism.

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n Medication Nonadherence in Hypertensive Patients

This live research study in a primary care clinic setting is to identify the prevalence of medication nonadherence in hypertensive patients. The purpose of the study is to determine the reasons for nonadherence. It is anticipated that the research will benefit patients in understanding both the importance and significance of maintaining medication where there is a diagnosis of hypertension. It is also anticipated to increase the awareness of the primary care provider of the reasoning behind patient nonadherence to hypertensive therapy and to develop a plan with the patient to improve adherence.

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Research to Practice Gap

There has been a long existence in the counseling professions when it comes to the research-to-practice gap. Many of the research findings that exist often tend not to move past university settings. Counselors in the field do not engage their time in reading or applying peer-reviewed articles within their professional settings. We all have heard the phrase, "Practice what you Preach," and many counselors are responsible for not applying research to their practice. Thirty-one rehabilitation professionals were asked about the effectiveness of professional journals when it comes to their practice, and 25% reported they do not invest time in reading them. In order to close the gap, both researchers and counselors must find solutions for implementing more research.

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The Fabrication of Nano-scale Templates Using Anodized Aluminum Oxidation

In recent years, nanotechnology has been a major topic for engineering research, with a focus on nano-manufacturing. This technology takes the advancements attained in micro electro-mechanical systems to the nano-scale, which has potential applications in the fields of solar power and biosensor applications. This project will use electrochemistry to create anodized aluminum oxidation (AAO) films for use as a template in the creation of 3D nano-structures. Research has shown these films effectively create uniform porous structures that can be used as a template for the construction of nanotubes and nanowires. The proposed research will evaluate the effectiveness of using AAO templates for a nano-stamping process to cheaply produce nano-patterned materials in large area applications.

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Educating Students About Domestic Violence

Our presentation of Educating Students About Domestic Violence will cover information crucial for students to know about domestic violence. Who are the victims? Why do victims of abuse stay in violent relationships? What type of person is an abuser? What type of person is a victim? How can young people better understand and prevent domestic violence?

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Which do T2DM Patients Value More: Daily Glucose Readings Vs HgbA1C?

Effective interventions are needed to slow the diabetes epidemic in this country. Healthcare providers are a key component in helping these patients to understand two effective measures in glycemic control: daily glucose testing and HgbA1C. The purpose of this study is to evaluate whether T2DM patients value the daily glucose readings versus the HgbA1C when evaluating the effectiveness of diet, exercise and medication on T2DM. A convenience sample of patients who have been diagnosed with T2DM were given a questionnaire asking which method of measurement was preferred. Through the results of this study, primary care providers will have a better understanding of which measurement is most valued by the patient, giving the provider another tool to implement against the disease of T2DM.

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Reality of Domestic Abuse in Jonesboro

This poster details a presentation on the reality of domestic violence in Jonesboro. We will review the effects of domestic violence, number of reported cases, and what resources are available locally. Our hope is to raise awareness to the reality of domestic violence in our area.

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n Is There a Correlation Between Hypertension and Renal Failure?

Hypertension is currently the most common cardiovascular disease and the second-most common cause of end-stage renal disease (ESRD) in the United States. The kidney is one of the most common organs adversely affected by high blood pressure. Research has revealed an increase in the prevalence of chronic kidney disease in individuals with high blood pressure. A retrospective chart review was performed on each participant. The results obtained from the information were used to statistically reveal evidence of the correlation that exists between hypertension and renal failure. The results from this study will enhance the participant's knowledge of the disease process and assist the healthcare provider in effectively initiating preventive measures and treating the condition.

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n International Social Work in Chile

This presentation will include a history of Chile, focusing on demographic information, the effects of poverty, economic opportunities and social welfare programs. It will also examine human rights issues, social work education/training and services found in Chile.

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n Domestic Violence in the LGBT Community

The purpose of this presentation is to design a poster to raise awareness about domestic violence within a Lesbian, Gay, Bisexual or Transgendered (LGBT) relationship. We will provide information regarding the prevalence / types of abuse and current laws and rights regarding victims of LGBT intimate partner violence. We will address the myths associated with LGBT relationship violence. We will explore similarities and differences in a LGBT relationship versus a heterosexual relationship. Our goal is to help others understand that domestic violence does not discriminate.

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n Hydroxyproline-O-Glycosylation of HRGPs in Green Algae and Its Applications for Enhanced Production of Secreted Recombinant Proteins

Hydroxyproline (Hyp)-rich glycoproteins (HRGPs) are important structural components of plant and green algae cell walls. Previous studies of recombinant HRGPs in tobacco cells showed peptide sequence directs Hyp-O-glycosylation in HRGPs. In addition, the fusion proteins with Hyp-O-glycosylation can be secreted into the medium. Currently, there is no research to characterize the Hyp-O-glycosylation by expressing recombinant HRGPs. So we will characterize the Hyp-O-glycosylation pattern of the HRGPs in algae through expressing synthetic gene constructs encoding HRGPs, such as tandem repeats of "Ser-Pro" and "Ser-Pro-Pro-Pro-Pro" in *Chlamydomonas reinhardtii*. Mutant *C. reinhardtii* species UVM4 with high levels of nuclear transgene expression will be used as host strains.

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n Third-Person Effect of Multitasking While Driving

Everyone knows it is really dangerous to text while driving, but most people cannot stop multitasking while driving. If you ask a university student if he/she thinks it is dangerous to text while driving, the answer will probably be, "Sometimes." However, if the question changes to "Do you think it is dangerous to your grandmother to text while driving?" the answer will probably be, "I think it is really dangerous." We call this situation the third-person effect. The third-person effect hypothesis states that a person exposed to a persuasive communication in the mass media sees it as having a greater effect on others than on himself or herself. The focus of our research is to illustrate and prove the third person effect of multitasking while driving on university students.

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NOTES:



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