4th Annual

Graduate Student Interdisciplinary Conference

Collaboration, Translation, and Outreach

April 9, 2010

Welcome to the University of Kentucky Graduate Student Interdisciplinary Conference!

On behalf of the Graduate Student Congress, it is our pleasure to welcome you to the fourth annual University of Kentucky Graduate Student Interdisciplinary Conference!

Graduate students all over campus are engaging in ground-breaking and exciting research in numerous fields, but it is all too easy to forget about the world outside our offices, laboratories, and classrooms. Under the theme of *Collaboration, Translation and Outreach*, we invite you to share your research, let the work of others inspire you, make new connections, and envision how research findings from a wide range of disciplines will affect lives all over the world in the future.

We are glad you are joining us today in this interdisciplinary dialogue!

Beth Kirby, Angela Schoergendorfer, Kate Shirley, Tina Kruger
GSC officers 2009/10

Schedule

8:00 - 8:30 AM On-site registration Student Center Annex

- Breakfast reception in Student Center 230

8:30 - 9:00 AM Opening Remarks Student Center 230

- Angela Schoergendorfer, GSC President
- Jeannine Blackwell, Ph.D., Dean of the Graduate School

9:00 - 10:00 AM Concurrent Session I Room

- Session 1A: Perspectives on Gender & Diversity Room 205
- Session 1B: Quantitative Methodologies Room 230
- Session 1C: Public Policies of Economy and Health Room 231

10:00 – 10:15 AM Break

10:15 – 11:15 AM Concurrent Session II Room

- Session 2A: Aging and Health/Pedagogy Room 205
- Session 2B: Environmental Issues and Applications Room 230
- Session 2C: Case Studies of Political Economy Room 231

11:00 AM -12:00 PM Poster Session Room 211

12:00 PM – 1:00 PM Lunch Student Center Small Ballroom

1:00 – 2:00 PM Concurrent Sessions III Room

- Session 3A: Issues in Public Education Room 205
- Session 3B: Technology Room 230
- Session 3C: Citizenship, Identity, and the State Room 231

2:00 – 2:15 PM Break

2:15 – 3:00 PM Keynote Address Room 230

Derek Lane, Ph.D.
Professor of Communication
University of Kentucky

3:00 - 3:30 PM Awards & Wrap-up Student Center 230

Tina Kruger, GSC Secretary and Conference Chair

9:00 – 10:00 AM Concurrent Session I

Session 1A: Perspectives on Gender & Diversity Room 205

- Hamilton, Aretina R. (Geography, University of Kentucky). *"Hidden Behind the 'Shade': Uncovering the Spaces of African American Lesbians in the Urban South,"* Abstract 205-1.
- Gittings, Glenn A. (Education Leadership, Foundations, and Human Resource Education, University of Louisville). *"The Effect of Doctoral Student Attributes and Doctoral Program Characteristics on Doctoral Degree Completion at the University of Kentucky and the University of Louisville,"* Abstract 205-2.
- Carrier, Amber N. (Biology, University of Louisville). *"Through Darwin's Eyes: The Exploration of Women's Mental and Reproductive Health Using an Evolutionary Framework,"* Abstract 205-3.

Session 1B: Quantitative Methodologies Room 230

- Kenawey, Mohamed (Mechanical Engineering, University of Kentucky). *"Thermal Imaging for Defects Detection on Stay Cable Bridges Using Finite Element Analysis,"* Abstract 230-1.
- Patel, Dhaval D. (Pharmaceutical Sciences, University of Kentucky). *"Maintenance of Supersaturation Development of Technique and Model to Study Crystal Growth Kinetics in Suspensions of Indomethacin, a Model Poorly Water Soluble Drug,"* Abstract 230-2.

Session 1C: Public Policies of Economy and Health Room 231

- Fickey, Amanda L. (Geography, University of Kentucky). *"Depoliticized Problems and Technical Strategies: Deconstructing the Discourse of Economic Development in Appalachia,"* Abstract 231-1.
- Goodin, Amie J. (Martin School of Public Policy and Administration, University of Kentucky). *"The Association Between Emergency Department Utilization by Kentucky Medicaid Patients and Smoke-Free Ordinances,"* Abstract 231-2.
- Adedoyin, Oreoluwa O. (Pharmaceutical Sciences, University of Kentucky). *"Formulation and Characterization of Inhalable Dry Powder Aerosols of Moxifloxacin hydrochloride for the Treatment of Multi- and Extra- Drug Resistant Tuberculosis,"* Abstract 231-3.

10:00 – 10:15 AM Break

10:15 – 11:15 AM Concurrent Session II

Session 2A: Aging and Health/Pedagogy Room 205

- Wasarhaley, Nesa E. (Psychology, University of Kentucky). *"Perceptions of Institutional Elder Neglect in Civil Court,"* Abstract 205-4.
- Starr, Marlene E. (Biochemistry and Molecular Biology, University of Texas Medical Branch). *"Vulnerability to Sepsis in the Aged is Linked to Reduced Protein C Pathway Activation,"* Abstract 205-5.
- Graddy, T. Garrett. (Geography, University of Kentucky). *"Geography Via Film: A methodology and pedagogy of participatory documentaries,"* Abstract 205-6.

Session 2B: Environmental Issues and Applications Room 230

- Grabbatin, Brian and Jairus Rossi (Department of Geography, University of Kentucky). *"(Non)equilibrium in Ecological Theory and Conservation Practice: A dialectical approach to nature,"* Abstract 230-3.
- Harris, Darby M. (Department of Horticulture, University of Kentucky). *"Genetic Modification in Cellulose-synthase reduces Crystallinity and Improves Biochemical Conversion to Fermentable Sugar,"* Abstract 230-4.
- Meeks, Noah D. (Chemical & Materials Engineering, University of Kentucky). *"Groundwater Cleanup of Trichloroethylene Using Supported Catalysts and Sustainable Synthesis,"* Abstract 230-5.

Session 2C: Case Studies of Political Economy Room 231

- Nyitray, Scott A. (Theatre, University of Kentucky). *Mamet's Invisible Hand: The Support of Capitalism in American Buffalo,"* Abstract 231-4.
- Deaner, Hugh P. (Geography, University of Kentucky). *"Creole Oil in Venezuela: developing oil by producing 'development',"* Abstract 231-5.
- Otto, Jonathan J. (Geography, University of Kentucky). *"Governmentality, Neoliberal Development, and Social Resistance: The Planning and Construction of the San Cristobal-Palenque Highway in Chiapas, Mexico,"* Abstract 231-6.

11:00 AM – 12:00 PM Poster Session Room 211

12:00 – 1:00 PM Lunch Student Center Small Ballroom

1:00 – 2:00 PM Concurrent Session III

Session 3A: Issues in Public Education Room 205

- Barnes, Brian G. (Humanities, University of Louisville). *"Interdisciplinary Reasoning: An Assessment of the Paul-Elder Framework for Humanities,"* Abstract 205-7.
- Mahmoud, Jihan. (Nursing, University of Kentucky). *"The Role of Maladaptive Coping in Predicting Mental Well-Being of Undergraduates' Psychological Distress Symptoms,"* Abstract 205-8.
- Laracuente, Nicholas R. (Anthropology, University of Kentucky). *"Public Archaeology 2.0: Facilitating Engagement with Twitter,"* Abstract 205-9.

Session 3B: Technology Room 230

- Yang, Xu (Industrial Engineering, University of Louisville). *"Real-time Optimization of an Outbound Distribution Problem,"* Abstract 230-6.
- Paruchuri, Jithendra K. (Electrical & Computer Engineering, University of Kentucky). *"Privacy Enhanced Human-centric Video Monitoring,"* Abstract 230-7.
- Yi, Ping (Computer Science, University of Kentucky). *"Cloud Computer: a Computer in the Cloud,"* Abstract 230-8.

Session 3C: Citizenship, Identity, and the State Room 231

- Todd, Maegan L. (Geography, University of Kentucky). *"Islam in Astrakhan, Russia,"* Abstract 231-7.
- Ellison, Mahan L. (Hispanic Studies, University of Kentucky). *Terra Nullius: (De) Constructing Identity, Nation & State in Western Sahara,"* Abstract 231-8.

- Snider, Mitchell B. (Geography, University of Kentucky). *"Hydropolitics in Spain: From authoritarian control to current local opposition,"* Abstract 231-9.

2:00 – 2:15 PM Break

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3:00 – 3:30 PM Awards & Wrap-up Student Center 230

Tina Kruger, GSC Secretary and Conference Chair

Keynote Address

21st Century Research Matters: Einstein's Challenge, Maslow's Hammer, Oppenheimer's Dilemma, and Pasteur's Quadrant

Derek Lane, Ph.D.
Professor of Communication
University of Kentucky

Derek R. Lane (Ph.D., 1996, University of Oklahoma) is an Associate Professor in the Department of Communication and former Associate Dean for Graduate Programs in Communication in the College of Communications and Information Studies at the University of Kentucky (2005-2009). Dr. Lane's research can be classified in the broad area of face-to-face and mediated message reception and processing to affect attitude and behavior change in instructional, organizational, and health contexts. His research has been funded by the U.S. Department of Education, the National Institute of Drug Abuse, the National Institute of Mental Health, and the National Science Foundation and appears in Communication Monographs, Communication Education, Media Psychology, Communication Research Reports, Health Promotion Practice, American Journal of Communication, the Journal of Engineering Education and the Journal of Experimental Education. He teaches graduate seminars in instructional communication, theory construction, advanced survey research methods and interpersonal communication. Dr. Lane is an endowed professor in the UK College of Engineering and is the recipient of several prestigious teaching and research awards.

ORAL PRESENTATION ABSTRACTS

205-1 Hidden Behind the 'Shade': Uncovering the Spaces of African American Lesbians in the Urban South. Aretina R. Hamilton. Geography, University of Kentucky.

While there continues to be a rich amount of works that address the creation of gay spaces, appropriation of and resistance to gay space and the development of gay identities in urban environments, much of this work has a heavy emphasis on the male experience (Howard 1997; Knopp 1995; Reed 2003;Valentine 1991). The inclination to adopt the white gay male experience as a universal code for homosexual life has simultaneously erased the visibility of lesbians, bisexuals and transgendered people, while also muting the voices of racial minorities who are gay has created a need for research that addresses the diversity of experiences in the gay community. This paper investigates and advances current discussions of gay identities by focusing on the lives of African American lesbians and same gender loving women in Atlanta. This project will also attempt to develop a better understanding of how African American lesbian culture in Atlanta has created a hidden landscape that acts as a buffer between the racism inherent in the larger gay (white) community and the presence of homophobia in the black community, while at the same time creating a universal point of destination for African American lesbians and gays (Bell 1991; Binnie 1995; hooks 1989).

205-2 The Effect of Doctoral Student Attributes and Doctoral Program Characteristics on Doctoral Degree Completion at the University of Kentucky and the University of Louisville Glenn A. Gittings, Education Leadership, Foundations, and Human Resource Education, University of Louisville.

Study participants consisted of doctoral students that entered the University of Kentucky and the University of Louisville. Participants provided demographic data and responded to survey

questions about their experiences with doctoral education. The study addressed the following research questions: (1) Do certain doctoral student demographic variables (age, ethnicity, gender, financial support, employment, marital status, dependents, distance from campus, debt load, employment status change after comprehensive exams, and enrollment status) affect doctoral student degree completion? and (2) Do doctoral program characteristics (graduate student orientation programs, departmental assistance, social involvement, dissertation preparation courses, dissertation preparation seminars, clarity and understanding of academic program procedures/requirements, dissertation chair contact, academic involvement, support groups, and mentoring) affect doctoral student degree completion?

The results were analyzed using logistic regression, Pearson Correlations and produced descriptive statistics. Analyses found that enrollment status of the doctoral student and the increase of age of the respondent may have a positive influence on doctoral degree completion. Conversely, employment status change after comprehensive exams and increased satisfaction with academic involvement indicated a negative relationship with doctoral degree completion. Finally, the variables of increased satisfaction with the dissertation chair and full-time employment of the respondents produced significant positive relationships with doctoral degree completion.

205-3 Through Darwin's Eyes: The Exploration of Women's Mental and Reproductive Health Using an Evolutionary Framework. Amber N. Carrier, Biology, University of Louisville.

One of the most important mechanisms of evolution is natural selection, or the tendency of heritable traits that increase the fitness of individuals to become more common in subsequent generations because of the survival and reproductive benefits that they confer. Because the passing of genes to the next generation requires successful reproduction, it can be inferred that natural selection would favor a good overall health status in women so that a successful pregnancy is far more likely. Because of this, it is important to examine women's health issues such as infertility,

depression, and chronic disease with an evolutionary lens in order to determine the primary cause of such illnesses. This presentation will examine women's health issues such as depression and infertility in light of natural selection and offer alternative contributing factors, based on prospective and ongoing studies, to the development of these illnesses. Multi-disciplinary and policy based solutions involving science and medicine will be explored and evaluated.

205-4 Perceptions of Institutional Elder Neglect in Civil Court.
Nesa E. Wasarhaley and Jonathan M. Golding. Psychology, University of Kentucky.

Mistreatment of elderly nursing home residents appears to be a growing problem. Yet, the literature on elder abuse in nursing homes has not adequately addressed this problem from a legal perspective. Thus, mock juror perception of institutional elder neglect (EN-I) was investigated in a civil court context. In Experiment 1 (N = 162) participants read a fictional EN-I civil trial summary in which an alleged victim (male or female) filed a lawsuit against his/her nursing home for failure to provide adequate care. Participants either read a version in which the alleged victim testified or did not testify. Results showed that participants were more likely to rule for the alleged victim (regardless of gender) if he/she testified. This ruling was mediated by several variables (e.g., anger toward defendant). In Experiment 2 (N = 68), with only a male alleged victim, a condition was added in which the alleged victim's floor-mate testified about witnessing the neglect. Results indicated the following pattern for likelihood of ruling for the alleged victim: alleged victim = floor-mate > no testimony. These results were mediated by perceived credibility of the plaintiff's case. Results are discussed in terms of the importance of alleged victim testimony in EN-I cases.

205-5 Vulnerability to Sepsis in the Aged is Linked to Reduced Protein C Pathway Activation. Marlene E. Starr, Hitoshi Takahashi, B. Mark Evers, and Hiroshi Saito. Biochemistry and Molecular Biology, University of Texas Medical Branch.

Sepsis, a life-threatening medical condition particularly among elderly, is an infection-mediated inflammatory disorder, which often causes organ failure when blood coagulates in vessels and impedes oxygen transport. The protein C (PC) pathway is a major anticoagulant mechanism wherein thrombomodulin (TM), an endothelial cell membrane protein, accelerates the conversion of PC to activated PC (APC), which degrades procoagulant factors. In this study, two models of sepsis were used: (1) injection with bacterial endotoxin lipopolysaccharide (LPS) and (2) induction of peritonitis by cecal ligation and puncture (CLP). In both models, aged mice (compared to young) showed significantly higher mortality, elevated fibrin formation (a marker of coagulation), absence of PC pathway activation and decreased TM expression. Mutant mice with reduced TM and deficient PC activation, obtained from collaborators at The Blood Center of Southeastern Wisconsin, showed increased fibrin formation and elevated mortality compared to wild-type mice after LPS or CLP, suggesting that TM deficiency contributes to increased coagulation and mortality. Taken together, these results demonstrate that PC pathway activation is suppressed with age and is partly responsible for increased coagulation and high mortality to sepsis in the aged. Future studies should focus on therapeutics to increase PC activation in elderly patients with sepsis.

205-6 Geography Via Film: A methodology and pedagogy of participatory documentaries. T. Garrett Graddy, Geography, University of Kentucky.

This paper explores the role and potential of participatory documentaries in teaching as well as researching critical geography. Participatory documentary videos often serve as

collective articulations of community challenges, resolutions, traditions, and complexities. From a research standpoint, such videos can work alongside (triangulate with) interviews and participant observation/action research as a means of learning about how a community frames and understands a particularly contested issue—such as "development" or conservation. In this way, researchers can employ the methodological framework of discourse analysis—as well as discourses *synthesis*—to study and discern key findings from the documentaries. Discourse synthesis entails linking language and paradigms from one endeavor/articulation to another—with the goal of bridging distant communities and initiatives that are facing comparable issues. After laying out my own experience using Peruvian documentaries in doctoral research, I conclude the paper discussing the Geography Via Film Project and the rich pedagogical potential of participatory documentaries—which can be understood as on-the-ground critical geographic theory and thus employed as compelling geography textbooks in and of themselves.

205-7 Interdisciplinary Reasoning: An Assessment of the Paul-Elder Framework for Humanities. Brian G. Barnes, Humanities, University of Louisville.

The Paul-Elder Critical Thinking Framework intends to enhance the quality of education in reasoning skills at the university level. At U of L, the Framework is the subject of ongoing faculty training as a way to translate critical thinking skills across disciplines. How useful is it in the various discrete disciplines of the Humanities? Each department possesses its own method for coming to knowledge, and that plurality could undermine the collaborative possibilities suggested by the Framework's authors. How can the Framework be adapted to explore disparate truths? If the framework is not useful on a discipline-specific level, does it retain a promise of general applicability? Can it be used as an interdisciplinary translation tool? Are there good reasons for some disciplines to abandon "the little blue book" altogether?

One way to investigate these questions is by performing the types of logical and pedagogical gymnastics suggested by the

Framework's creators. This paper self-consciously explores the usefulness of the Framework's approach by constructing, analyzing, and subsequently deconstructing it in interdisciplinary and discipline-specific applications. The Framework's usefulness is demonstrated for specific applications in philosophy, literary criticism, and art history, and it is successfully reaches across some disciplines.

205-8 The Role of Maladaptive Coping in Predicting Mental Well-Being of Undergraduates' Psychological Distress Symptoms. Jihan Mahmoud, Ruth "Topsy" R. Staten, and Lynne A. Hall. Nursing, University of Kentucky.

Recent research and clinical experience indicate that more undergraduate students are experiencing increased levels of depression, anxiety, and stress. Yet, it is less clear what activities might assist students in decreasing these mental health concerns. This paper aims to evaluate the influence of coping style, life-satisfaction, and demographics on undergraduates' mental health factors. In a cross-sectional study, 508 undergraduate students aged 18-24 completed mailed surveys assessing their mental health factors using the Depression Anxiety and Stress Scale-21 (DASS-21) (Lovibond & Lovibond, 1995). Their coping and life-satisfaction were evaluated using the Brief COPE Inventory (Carver, 1997) and an adapted version of the Brief Students' Multidimensional Life Satisfaction Scale (Huebner, 1994). Hierarchical multiple regression was used to examine the relative contribution of the independent variables to the dependent ones. Findings indicate that maladaptive coping is the main and strongest predictor of the three mental health factors. Implications of these findings include developing and evaluating interventions that may diminish maladaptive coping strategies in undergraduates and thereby improve their mental well-being.

205-9 Public Archaeology 2.0: Facilitating Engagement with Twitter. Nicholas R. Laracuente, Anthropology, University of Kentucky.

One goal of public archaeology is to increase public awareness of archaeological issues and their practical applications to modern social issues. Public archaeology facilitates the understanding of archaeological, historical, and social issues through a variety of methods. Classroom visits, hands-on activities, site tours, and other events give archaeologists the opportunity to engage public audiences and transfer knowledge through face-to-face interaction. A problem with this approach is that the engagement ends at the conclusion of the event. The use of internet applications, including Twitter, can solve this problem by offering a chance to continue interaction past the boundaries of the event.

Twitter is a micro-blogging application that allows one to send 140 character "tweets" to their "followers." Tweets can be received via the Twitter website, third party applications, feeds embedded in websites, or text messages. Followers can respond to the original user or "retweet" the message to their followers. This application transcends the spatial and temporal boundaries of the event by allowing sustained multi-directional communication between archaeologists, their audience, and others who never attended the original event. This form of engagement facilitates learning and can be applied across disciplines.

230-1 Thermal Imaging for Defects Detection on Stay Cable Bridges Using Finite Element Analysis, Mohamed Kenawey, Belal Gharaibeh, Ahmad Salaimeh, and Kozo Saito. Mechanical Engineering, University of Kentucky.

Infrared Thermography is considered one of the NDT techniques used for bridge inspection. In this study, we are focusing on developing an IR active inspection system to locate voids inside stay cables. A 2-D Finite Element Analysis (FEA) using Mechanical APDL, ANSYS software, was used to simulate the thermal response in a stay cable consisting of Polyethylene casing, grout filling and steel centered bars. The simulation was carried

out for three cases of different sizes and depths of internal voids for a stay cable model. The transient FE thermal solution was found for heating and cooling scenarios. The results showed that the temperature distribution along the surface depends on the void size and depth along the cross section of the pipe with an increase in maximum outer surface temperature, at the void location, by 9% due to doubling the void size and reduction in 12% for voids twice the depth from the Polyethylene internal wall in a heating scenario. As a result, thermal FEA was found to be effective to verify several void cases. Such study can help developing a new IR imaging inspection system of stay cable bridges.

230-2 Maintenance of Supersaturation Development of Technique and Model to Study Crystal Growth Kinetics in Suspensions of Indomethacin, a Model Poorly Water Soluble Drug. Dhaval D. Patel, Vijay Joguparthi, Zeren Wang, and Bradley Anderson. Pharmaceutical Sciences, University of Kentucky.

One of the major challenges faced by the current drug development pipeline is the risk of clinical failure associated with the development of poorly water soluble drug candidates due to their lower and variable oral bioavailability. Recently, maintenance of supersaturation in the g.i. tract has been shown to be beneficial for oral bioavailability enhancement, however the mechanisms by which formulation excipients maintain supersaturation are seldom proven nor is it clear what properties of the drug and excipient molecules provide an optimal combination. One of the reasons for the deficiency of such studies could be the lack of simple, robust, and reliable techniques to quantitatively measure the kinetics of highly complex and sensitive processes such as nucleation and crystal growth that influence the maintenance of supersaturation. Overall goal of this collaborative project (industrial partner: Boehringer Ingelheim Inc., Ridgefield, CT) is to develop a quantitative and mechanistic understanding of model excipient effects on the maintenance of supersaturation by crystal growth inhibition. The aim of this study was to develop techniques and models to determine crystal growth kinetics of a

model poorly water soluble drug, indomethacin. We have developed a non-invasive (online) technique to measure crystal growth kinetics using second derivative UV spectroscopy. We have determined that the reaction order of overall indomethacin crystal growth process is equal to 1, and bulk (or volume) diffusion is the rate limiting step at higher degrees of supersaturation (DS). Effects of excipients including hydroxypropyl methyl cellulose (HPMC), hydroxypropyl-β-cyclodextrin (HP-β-CD) and sucrose were evaluated. At higher DS (5) & 0.05% w/w level, HP-β-CD and sucrose enhanced indomethacin crystal growth by ~1.5 fold. At lower DS (2), HPMC (0.05%) as well as HP-β-CD (0.05% and 0.2%) inhibited indomethacin crystal growth by 2, 3, and 11 fold, respectively. The long term impact of our work would be the creation of a rational-based framework that would allow a formulation scientist to predict a priori the most suitable excipient(s) for a given poorly water soluble drug candidate to achieve desired prolongation in supersaturation, and in turn oral bioavailability enhancement.

230-3 (Non) equilibrium in Ecological Theory and Conservation Practice: A dialectical approach to nature. Brian Grabbatin and Jairus Rossi, Department of Geography, University of Kentucky.

Political ecologists, cultural anthropologists, and environmental historians describe how conceptualizations of nature lead to conservation practices with varied material outcomes. Case studies suggest that ecological theories, which characterize nature as balanced and trending toward equilibrium, yet susceptible to human action, are used to support conservation enclosures. Enclosures are critiqued for prioritizing expert-based management schemes relying on strict biophysical benchmarks. Expert-based and traditional ecological knowledge conflict because livelihoods are characterized as drivers of degradation. To mitigate these social concerns a few social scientists promote management informed by nonequilibrium concepts from ecology and geomorphology. Nevertheless, nonequilibrium remains underexplored and loosely applied by human geographers. We

argue that translating nonequilibrium science into alternative conservation practices creates both problems and opportunities for incorporating multiple knowledges and land-uses.

230-4 Genetic Modification in Cellulose-synthase reduces Crystallinity and Improves Biochemical Conversion to Fermentable Sugar. Darby M. Harris, Jozsef Stork, and Seth DeBolt. Department of Horticulture, University of Kentucky.

The cellulose synthase (CESA) membrane complex synthesizes microfibrils of cellulose that surround all plant cells. Cellulose is made of sugar (beta-1,4 glucan) and accessing the sugar in cellulose for the production of biofuels is of critical importance to stem the use of fossil fuels and to avoid competition with food crops and pristine lands associated with starch-based biofuel production. A contributing factor to the recalcitrance of cellulose by enzymatic conversion to fermentable sugar is related to the crystallization of the glucan chain. Herein, we isolate the first viable low biomass-crystallinity mutant by screening for altered cell wall structure using X-ray scattering and enzymatic conversion efficiency on a range of cell wall mutants in the model plant Arabidopsis thaliana. Through detailed analysis, we identified the mutant ixr1-2, which contains a mutation in a highly conserved consensus sequence among the C-terminal transmembrane regions within CESA3. The novelty of this high-throughput screening method was made possible through the use of the D-8 Discovery X-ray diffractometer that was made available through the Kentucky Geological Survey, thus illustrating the importance of utilizing interdisciplinary collaboration. Future application of these results through their translation into viable bioenergy crops and the potential for new collaboration is also discussed.

230-5 Groundwater Cleanup of Trichloroethylene Using Supported Catalysts and Sustainable Synthesis. Noah D. Meeks and Dibakar Bhattacharyya. Chemical & Materials Engineering, University of Kentucky

Trichloroethylene (TCE) is the most prevalent groundwater pollutant in the world. It is persistent in the underground environment and toxic to humans. Because the pollutant is so prevalent but often present in low concentrations, remediation techniques have focused on injection of reactants into underground plumes, rather than pumping and treating groundwater. Recent studies have shown the effectiveness of iron nanoparticles to destroy TCE by direct electron transfer, and bimetallic particles such as Fe/Pd have been shown to be effect the complete reduction of TCE to ethane by hydrogenation catalysis. While these particles have been shown effective towards the destruction of TCE in laboratory tests, this approach has some disadvantages. To overcome these we show the usefulness of supported particles toward destruction, which overcome the disadvantages of particle agglomeration and also allow for multiple functional domains (both hydrophobic and hydrophilic) on the support surface. We also show the effectiveness of a recently-proposed particle synthesis method, using nothing but water and vitamin C to reduce the metal precursor salts or Fe/Pd particles.

230-6 Real-time Optimization of an Outbound Distribution Problem. Xu Yang, Industrial Engineering, University of Louisville.

Today an important trend in logistics and supply chain management is the increased focus on real-time decision making as a result of continuing developments in telecommunication and information technologies such as radio-frequency identification (RFID) and global positioning system (GPS). These technologies can enhance the capability in logistics and supply chain planning and provide necessary information to perform real-time decision making. In order to realize real-time optimization, we need to apply new operations research (OR) techniques other than traditional OR-based approaches. In recent years, agent-based simulation has been a preferred approach to enable real-time decision making/optimization. We focus our study on the execution phase of the integrated production, inventory and

distribution problem proposed in one of our paper. The solution of this integrated model provides us a good starting point of the actual planning; however, we still need to deal with the dynamic changes occurring in the execution phase. Our objective is to keep the good features of the optimal/near optimal solution given by the optimization model and apply multi-agent technique to search for a fast and good solution responding to the dynamic changes.

230-7 Privacy Enhanced Human-centric Video Monitoring. Jithendra K. Paruchuri, Electrical & Computer Engineering, University of Kentucky.

This talk presents our research in building an end-to-end framework for privacy protection of multimedia data. A typical video privacy protection system must be capable of selectively concealing/protecting the identity of certain individuals/objects within the video. The technology is developed using various signal processing / vision techniques like background subtraction, subject detection, object tracking, video obfuscation and data-hiding. Also, the translation of this application to an inter-disciplinary application is discussed.

Tantrums and other disruptive behaviors in early childhood are among the most common problems reported by parents. Currently clinicians are limited in providing insight and treatment recommendations based on the limited information available to them. A video camera is well-suited for recording complex interactions, as behavior can be recorded, analyzed later, and replayed as often as needed. Unobtrusive recording is preferable, but since naturalistic behaviors often occur in the home, this may interfere with the family's privacy unless specifically addressed through realistic and acceptable means.

VIBE (Video Interface for Behavioral Evaluation) is a novel system built based on our privacy-protected capturing technology, which addresses the above problem. The system is demonstrated to be effective both in terms of protecting the privacy of the video and the usability i.e. utility of the processed video.

230-9 Cloud Computer: a Computer in the Cloud. Ping Yi, Computer Science, University of Kentucky.

Today people use computers by owning physical computers. And people need to copy files for traveling. If any physical damages on computers people will lose their important files on them and need to rebuild a new computer. A cloud computer can provide users a virtual computer on the Internet. It has its own virtual disk and virtual operating system. They can collaborate with each other. In this way, cloud computers provide better reliability, scalability and security than traditional computers. Peer-to-peer technology will be applied to build the cloud storage systems. Incentive and security mechanisms are designed for the systems. The virtual operating system manages file and storage systems and software packages on it. It provides users convenient ways to integrate cloud services (software) from third parties. As all of it are on the Internet users can easily access his/her cloud computer by using any Internet terminals from anywhere at any time. People no longer need to worry about any physical damages on their computers and need not to copy files here and there. So this innovative technology will bring big changes to people how we use computers in the future.

231-1 Depoliticized Problems and Technical Strategies: Deconstructing the Discourse of Economic Development in Appalachia. Amanda L. Fickey, Geography, University of Kentucky.

In 1964, the language of economic development practitioners was employed to support the creation of a federal agency in and for Appalachia, the Appalachian Regional Commission. The final document produced by President Kennedy's Appalachian Regional Commission, titled "Appalachia: A Report by the President's Appalachian Regional Commission, 1964" (hereafter, the PARC report), would support the creation of the ARC and solidify the economic development discourse in Appalachia.

Through my analysis of this document, I determine in what ways Appalachia was defined as an area in need of economic development, how inhabitants of the region were represented, and what economic development strategies that were recommended for the region. I focus on four themes: the notion of isolation, the need for agricultural improvement, human resources, and the role of economic development departments and private enterprise.

The problems facing Appalachia were depoliticized, rendered as technical issues for development agencies to address. Powerlessness that individuals faced in their daily lives was disregarded. The PARC report argues that through modernization Appalachia would eventually catch up with the rest of America. My research is outreach oriented in that I demonstrate the negative consequences of this discourse of economic development and suggest an alternative path forward.

231-2 The Association between Emergency Department Utilization by Kentucky Medicaid Patients and Smoke-Free Ordinances. Amie J. Goodin and Amanda Fallin. Martin School of Public Policy and Administration, University of Kentucky.

Several Kentucky communities have passed smoke-free ordinances since 2004. The purpose of this study is to determine if the frequency of Emergency Department (ED) visits for smoking-related respiratory and cardiovascular health events changed after the passage of a community smoke-free ordinance in children and adults enrolled in Medicaid. Using Medicaid claims data, frequencies of ED visits that occurred two years before and after the passage of a smoke-free ordinance and have a primary or secondary diagnosis of asthma, bronchitis, emphysema, MI, or stroke will be collected. The study design incorporates treatment counties (county has passed an ordinance) and control counties (county has not passed an ordinance and is not bordering a treatment county). A difference-in-difference model will be used to analyze the data and control for demographic factors, differences in region, and the time periods between the passages of ordinances. The results of this study could determine the effect of smoke-free ordinances on health outcomes of Kentucky Medicaid

beneficiaries, which is a vulnerable population that faces health disparities. The implementation of smoke-free ordinances has been controversial in many Kentucky communities and the findings from this interdisciplinary project could have implications for future policy changes.

231-3 Formulation and Characterization of Inhalable Dry Powder Aerosols of Moxifloxacin hydrochloride for the Treatment of Multi- and extra- Drug Resistant Tuberculosis.
Oreoluwa O. Adedoyin and H. M. Mansour. Pharmaceutical Sciences, University of Kentucky.

Tuberculosis is the 2nd most deadly infectious disease (after HIV/AIDS) often caused by infection with Mycobacterium tuberculosis. Approximately 2 billion people are currently infected. The mycobacteria are easily transmitted, extremely virulent, and infect the lungs directly via the inhalation route. Tuberculosis was previously considered a 'nearly-eradicated' third-world disease, however, with the emergence of multi and extra drug resistant strains, rise in tuberculosis infections in immunocompromised patients (e.g. HIV/AIDS and lung cancer patients); it has become a new threat to public health.

This presentation focuses on the design, formulation, and characterization of micro- and nanoparticles of Moxifloxacin hydrochloride (a potent fluoroquinolone antibiotic used as a second-line antituberculosis drug) for targeting the alveolar macrophages. Using an advanced spray drying system for particle engineering, dry powder particles of Moxifloxacin hydrochloride with optimized particle surface properties, unimodal particle size distribution, and optimal respirable size have been formulated. Extensive physicochemical characterization of formulated particles to evaluate properties such as particle size, surface morphology, crystallinity, thermal events, water content, and vapor sorption isotherms have been carried out. These rigorous techniques have proved informative in helping to successfully optimize these particles as dry powder inhalation aerosols having tremendous potential in treatment and eradication of drug resistant Tuberculosis.

231-4 Mamet's Invisible Hand: The Support of Capitalism in American Buffalo. Scott A. Nyitray, Theatre, University of Kentucky.

Playwright David Mamet consistently viewed the culture of American business as an ugly and brutal industry. It was until his 2008 Village Voice editorial, "Why I am No Longer a 'Brain-Dead Liberal' An election-season essay," that Mamet's denouncement of the capitalist system shifted to a support of a free market economy. In light of Mamet's revised economic philosophies, a reexamination of his work is necessary to determine if these favorable opinions towards capitalism were taking shape throughout his career. I argue that by analyzing his 1975 play American Buffalo with Adam Smith's theory of "the invisible hand" and the economic principles of Milton Friedman, it becomes evident that American Buffalo does not depict the evils capitalism—demonstrating how the American business system forces the betrayal of friendships, while fostering an acceptance of thievery and deception—but unintentionally demonstrates the dangers of a closed economic system based on domination and monopolies and illustrates how personal greed can be channeled to benefit the community. This article will prove that American Buffalo is not the indictment of capitalism as it is usually perceived, but defends a free economic system that utilizes the power of greed to the advantage of the community.

231-5 Creole Oil in Venezuela: developing oil by producing 'development.' Hugh P. Deaner, Geography, University of Kentucky.

My paper interrogates two geographic discourses: development theory and the political economy of oil. Investigating each of these two literatures separately finds they share at least one commonality, namely disengagement from a theoretically-relevant actor, the transnational corporation (TNC). My paper undertakes a limited case study of one corporate actor; Creole Oil was the key Standard Oil ("Jersey") subsidiary in Venezuela, a country incorporating one of the world's greatest oil reserves. In addition

to conventional views of Creole as an oil exporter embedded in liberal economy, Creole can be seen as engaging in what Ferguson (1994) would call "developing" Venezuela, i.e. conducting activities typically considered to lie within purviews of national and supranational, but not corporate, behavior. Thus, my paper contributes to partially suturing gaps between development and business studies.

231-6 Governmentality, Neoliberal Development, and Social Resistance: The Planning and Construction of the San Cristobal-Palenque Highway in Chiapas, Mexico. Jonathan J. Otto, Geography, University of Kentucky.

Using data obtained from semi-structured interviews with government officials, NGOs, and indigenous communities in the southern-most state of Chiapas, this article examines the role of the San Cristóbal-Palenque Highway project in providing the Mexican government with a response to state opposition. It argues that the mapping of the highway reflects a project of governmentality promoted by the Mexican state aimed at strategic pacification through the production of state subjects and the integration of indigenous communities within a neoliberal economic vision. This article concludes first that taken together, the dual goals of economic development and social regulation wrapped up in the highway project reflect development at the barrel of a gun wherein the intentions and effects of development can be quite violent. Second, it concludes that the seemingly coherent highway project is in fact quite incoherent, and that the map of the highway is comprised of a complex array of institutional logics influenced by the multiple agendas of the many ministries that represent the Mexican state in the highway development project. Third, this article concludes that social opposition to the development project highlights the social limitations governmentality.

231-7 Islam in Astrakhan, Russia. Maegan L. Todd, Geography, University of Kentucky.

This paper serves as an attempt to see how and under what influences communities of Islamic faith develop in post-Soviet Russia. Astrakhan, the capital of Astrakhan Oblast, is located in southwest Russia and has a reputation for being a multi-confessional and multi-ethnic city. Located near the ruins of Sarai, an ancient capital of the Golden Horde, Astrakhan is home to Russians, Tatars, Kazakhs, Kalmyks, and many other nationalities. I draw from newspaper articles and documents to explore what the local landscape of Islam look like in Astrakhan, how has it changed since the collapse of the USSR, and what are plans for the future. Mosque renovations, construction, and demolitions are considered.

Through drawing from critical geopolitical literature, this paper then seeks to understand how the Kremlin and other organizations or sources influence the development of Islam locally within Astrakhan. I hope to contribute to an understanding of the importance of the relationship between the state and local Islamic communities for Islamic nation-building in the Russian Federation. My research is interdisciplinary because it has implications for history, politics, and political and cultural geography.

231-8 Terra Nullius: (De) Constructing Identity, Nation & State in Western Sahara. Mahan L. Ellison, Hispanic Studies, University of Kentucky.

What to do about the region known as Western Sahara has proven a persistent and elusive enigma. Over thirty years after it was decolonized by Spain, it represents a disputed and confusing territory whose future hangs in a tenuous balance. Since 1975 Moroccan, Mauritian and Saharawi claims to the territory have competed in open warfare, oppression, and resistance, and internationally mediated negotiation. For almost thirty-five years, the Saharawi Polisario and the Moroccan government have maintained an effective stalemate. Western Sahara finds itself in a

political limbo, the dreams and hopes of its residents deferred indefinitely.

231-9 Hydropolitics in Spain: From authoritarian control to current local opposition. Mitchell B. Snider, Geography, University of Kentucky.

“Disputes between Spain’s autonomous regions are escalating over the country’s ongoing water crisis. Government officials describe the present drought as the worst in a century.” (Bond 2008). The implications of water scarcity issues in Spain impose new constraints on labor and society, but also present a meaningful space of engagement and organization for local populations. The proposals to lessen water scarcity are many and complex. They are embedded in social relations, political developments, and politico-ecological realities that have significant histories. This paper looks at the historical production of the Spanish hydroscape utilizing a political economy approach, which helps to uncover the dialectical relationship between the environment and politics. By considering the course of Spanish water policy, we can begin to understand the articulations of civil engagement that occurs today in Spain. Thousands of protesters with diverse goals are pressuring the government to change and reconsider previous water policies. Some seek ways to collaborate with or contest government policies; some are reaching out to their communities for strength and support. Protest, collaboration and opposition are the ways in which many are actively interpreting their local environment and engaging their elected officials.

POSTER PRESENTATION ABSTRACTS

211-1 Effect of Solution-state Interactions between Nonionic Polymer and Ionic Surfactants on Adsorption on Pharmaceutically Relevant Surfaces. Salin Gupta Patel, Pharmaceutical Sciences, University of Kentucky.

Abstract Authors: Salin Gupta Patel, Paul M Bummer.

Purpose: The aim of this study was to determine the effect of solution-state interactions between a nonionic polymer and ionic surfactants on adsorption on pharmaceutically relevant surfaces as a preliminary study of the mechanism of stabilization of nanosuspensions by formulation excipients.

Methods: Solution-state interactions between the DTAB and PVP were studied by isothermal titration calorimetry (ITC). A micellar solution at 5x critical micelle concentration (CMC) is titrated into solution with and or without a constant amount of polymer dissolved. Enthalpy change for each injection is plotted against surfactant concentration in the sample cell. Interactions of surfactant and or polymer with solid silica surface was also determined by the similar process, in which case 2% silica is added to the sample cell. Enthalpy of micellization, aggregation and displacement for the mixed vs. pure system was calculated by determining the enthalpy difference from the enthalpograms obtained for the micellization, aggregation and displacement processes, respectively.

Results: Solution-state interactions between the cationic surfactant DTAB and nonionic PVP were seen with ITC. A decrease in (CMC) was observed with the two-component system of DTAB and PVP (17 mM) as compared to DTAB alone (19 mM). The enthalpy of micellization of pure surfactant DTAB (1.7 kJ/mole) decreased with the addition of 2000 ppm PVP (1.6 kJ/mole) and a further decrease was observed at a higher concentration of 5000 ppm of PVP (1.5 kJ/mole). A distinct shift in the enthalpograms of the mixed system was seen in the presence of 2% solid silica particles as compared to the single component

system and may be directly related to the solution-state interactions of PVP with DTAB.

Conclusions: Evidence of solution-state interactions between DTAB and PVP was obtained from a shift in values for enthalpy of micellization and CMC for the mixed system vs. single component system alone. A distinct shift of the enthalpograms in the presence of silica strongly suggests that these solution-state interactions affect the adsorption process on the silica particles.

211-2 No-till Organic Corn Production. Alfonso L. Suarez, Plant and Soil Sciences, University of Kentucky.

Abstract Authors: Alfonso Suarez, Larry J. Grabau.

Most organic corn (Zea mays L.) production systems make extensive use of tillage as part of their soil management strategies. Unfortunately, reliance on tillage demands labor and fuel inputs and may exacerbate soil losses due to erosion and CO2 efflux to the atmosphere. The objective of this research was to determine the utility of no-till methods for production of organic corn. The experimental design included three environments (Princeton 2008, Princeton 2009 and Lexington 2008), two tillage systems (no-till and conventional), and two cover crops [hairy vetch (Vicia villosa) and winter rye (Secale cereale)]. Planting of all blocks was delayed until early June when hairy vetch reached 75% flowering (in order to ensure good kill); no-till plots of both hairy vetch and winter rye were rolled-down using a front-mounted roller crimper followed by a no-till planter. Measurements included yield, ear leaf N and protein in grain. The interaction of cover crops and type tillage was found significant for yield in the three environments. It appears that no-till methods have some potential for organic corn production.

211-3 Synthesis and properties of a new amide functionalized benzimidazole compound and its transition metal complexes. Samuel S. Asem, Chemistry, University of Louisville.

Abstract Authors: Samuel S. Asem, Mark S. Mashuta, and Robert M. Buchanan.

Transition metals play a huge role in active sites of most enzymes. The metal center usually binds and helps to activate the targeted substrate molecule through its transformation to the resulting product. Many metalloproteins use histidine as a ligand, and biometric studies of the metalloprotein active sites have used imidazole and benzimidazole complexes to model their structural and electronic properties. Toward this end, we have prepared a new ligand system that contains both the benzimidazole moiety as well as a pendant amide functionality. This ligand displays proton tautomerism properties reminiscent of acetylacetonate and coordinates readily to first row transition metal ions. In this study, we will examine the coordination properties of this new amide functionalized ligand with Co, Ni and Zn as well as their respective physical properties. The structure of the free ligand has been determined by X-ray crystallographic analysis as well as the structures of its Co, Ni and Zn complexes. The metal complexes also have been characterized using standard physical methods such as IR, 1H NMR, and UV-Vis.

211-4 The Kentucky Needs Assessment Project: A Collaborative Research Study. Megan F. Dickson, Department of Sociology and Center on Drug and Alcohol Research, University of Kentucky.

The Kentucky Needs Assessment Project (KNAP) is an ongoing, state funded study examining levels of substance use, abuse and dependence among Kentucky residents while simultaneously estimating substance abuse treatment need across the Commonwealth. The KNAP is an example of a successful large-scale project requiring the efforts of multiple agencies. In this particular instance, the University of Kentucky Center on Drug and Alcohol Research (CDAR), the University of Kentucky Survey

Research Center, and the Kentucky Division of Behavioral Health collaborate to execute the KNAP – each taking on different roles in the project to ensure successful completion. In the past, the collaborative efforts of these agencies have resulted in a written project report using the collected data. While reports were primarily prepared for the funding agency, the ever-increasing attention on problems of substance abuse has brought in a variety of secondary audiences. These audiences have included community and government organizations, state officials, policymakers, treatment providers, and prevention specialists, among others. Discussion includes the benefits and challenges of working with others to implement a research study and disseminating results to the broader community.

211-5 Wetland Puppetry Design. Carri L. Burgjohann, Art Education, University of Kentucky.

Abstract Author: Carri Burgjohann with support from: Bob Haven and Nelson Fields, University of Kentucky, Theater Department, Dr. Julia Cherry and Dr. Janeann Dill, University of Alabama, New College, The University of Maryland, College Park The University of Louisiana, Lafayette: Dr. Ray Brassieur (Anthropology) and Dr. Carl A. Brasseaux (Center for Cultural and Eco-Tourism), National Wetlands Research Center, Lafayette, LA University of Alabama College of Arts & Sciences, University of Alabama Center for Ethics and Social Responsibility USGS Global Change Program

After experiential research in the Louisiana coastal wetlands in the summer of 2007, a puppetry series and accompanying curriculum were designed and developed. Through a continued collaboration with faculty from the University of Alabama and The University of Kentucky, a reassessment of the series, its fabrication methods, purpose, and application has taken place. Two puppets in the series undergoing redevelopment, and their original counterparts, will be presented along with brief research and findings on wetland ecosystems, visual literacy and learning, and methods of fabrication. By reaching across the disciplines and providing a tangible learning experience we have an opportunity to raise up a

generation of young people who are educated and engaged in the world around them.

211-6 Ergot alkaloids induce vasoconstriction of bovine foregut vasculature. Andrew P. Foote, Animal and Food Science, University of Kentucky.

Abstract Authors: Andrew P. Foote, J.L. Klotz, D.L. Harmon, L.P. Bush, and J.R. Strickland

Alkaloids present in tall fescue are imputed to cause peripheral symptoms of fescue toxicosis. We hypothesized these compounds could affect foregut vasculature. The objective of this study was to determine vasoconstrictive potentials of ergovaline (ERV), ergotamine (ERT), ergocryptine (ERP), ergocristine (ERS), ergonovine (ERN), ergocornine (ERO), lysergic acid (LSA), and a fescue seed extract (EXT) on ruminal artery and vein. Segments of ruminal artery and vein were collected from heifers shortly after slaughter, cleaned and suspended in a multi-myograph with buffer. Vessels were equilibrated followed by addition of 120 mM KCl. Increasing concentrations of each compound were added to the respective chamber every 15 min. Data were normalized as a % of the contractile response induced by KCl. No venous response was observed until 1x10-5M and no arterial response was observed until 1x10-6M for ERV and ERT, 1x10-5M for ERP, ERO, and ERN, and 1x10-4M for ERS. A greater arterial response was observed for ERO, ERT, ERV, and EXT and the arterial and venous responses were not different for ERN, ERP, ERS, and LSA. These results indicate that ergot alkaloids have potential to alter blood supply and drainage from the foregut and the differential vessel responses may contribute to the syndrome.

211-7 Brother of CDON Expression in Articular Cartilage. Kadie S. Vanderman, Veterinary Science, University of Kentucky.

Abstract Authors: Kadie S. Vanderman, Marlène Tremblay, Stephen J. Coleman, Mihoko Shimojo, Jinze Liu, and James N. MacLeod.

A microarray based transcriptional profiling screen that compared equine articular cartilage to 10 other adult tissues identified Brother of CDON (BOC) as having a cartilage-restricted pattern of expression. This finding was confirmed by qPCR and mRNA sequencing, with steady state BOC mRNA levels ranging from 5.7-fold (34 day whole embryo) to 1122-fold (lymph node) higher in articular cartilage by RT-qPCR. Loss of the chondrocytic phenotype by passage of primary cells in monolayer culture was associated with a significant decrease in BOC transcripts. Transcriptional data were confirmed on a protein level by immunohistochemistry, demonstrating a cell-associated pattern of positive staining. BOC is known to interact with a structurally related protein called 'cell adhesion molecule-related/down-regulated by oncogenes' (CDON) to form a membrane-associated heterodimeric receptor that binds hedgehog signaling ligands. Transcriptional analysis of CDON expression in articular chondrocytes was found to broadly parallel the pattern observed with BOC. These data demonstrate a high level of BOC expression in adult articular cartilage relative to other tissues and suggest that BOC/CDON heterodimers may be a primary receptor on chondrocytes mediating Indian Hedgehog signaling.

211-8 Dietary magnesium alters urinary histamine excretion in domestic felines. Sarah K. Martin, Animal Science, University of Kentucky.

Abstract Authors: S. K. Martin*1, C. E. Conway1, M. R. C. de Godoy1, D. L. Harmon1, E. S. Vanzant1, S. Zicker2 , R.M. Yamka 2, and K. R. McLeod1

Magnesium (Mg) deficiency has been associated with increased histamine production in rats. Limitation of Mg with acidifying

foods is common practice for management of urinary tract health in domestic cats. Nine healthy adult female shorthair cats were used in a 3 period random crossover experiment with fixed treatment sequences to test the effects of dietary Mg (0.06, 0.12, and 0.18% DM) on histamine in blood and urine. The dry-extruded test foods were fed in sufficient amounts to maintain ideal body weight and obtain a target urine pH of 6.3. Each experimental period was preceded by a 7d wash out period, in which the 0.06%Mg was fed, followed by a 14d feeding period of the appropriate food. Two 24h total urine collections were performed (d13: acidified, d14: unacidified; immediately iced) and blood was collected on d14. Dry matter intake P=0.70) and BW (P=0.30) were not affected by treatment. Plasma Mg increased linearly with increasing dietary Mg (0.54, 0.56, 0.58 mM; P=.001). Urinary histamine excretion responded quadratically (P=0.02) to treatment (3483, 3369, 3986 ng/d), whereas plasma histamine concentration (P=0.8) was unaffected. Differences were not detected among treatments in total histamine, cellular + noncellular histamine, (P=0 .70) or antigen-induced (P=0.21) histamine release in whole blood. Urine output (P=0.48), pH (P=0.95), NH3 (P=0.21), and titratable acidity of urine (P=0.78) were similar across treatments. These data suggest that dietary Mg concentration at 0.06- 0.12% has little effect on histamine in blood or urine, however, supplying Mg at 0.18% increased urinary histamine.

211-9 Iron-Based Platforms for the Promotion of Free Radical Reactions. Scott R. Lewis, Chemical and Materials Engineering, University of Kentucky.

Abstract Authors: Scott R Lewis, S. Daunert, L. Bachas, D. Bhattacharyya.

Oxidative techniques utilizing free radicals have proven effective for the destruction of toxic organic compounds such as trichloroethylene (TCE) and polychlorinated biphenyls (PCBs). TCE is a groundwater contaminant commonly found in large pools known as dense non-aqueous phase liquids (DNAPLs). The most common oxidative destruction techniques used for groundwater remediation applications are modified forms of the

Fenton reaction, in which Fe(II) reacts with hydrogen peroxide to form hydroxyl radicals. This reaction takes place at low pH and cannot be performed effectively at near-neutral pH due to ferric hydroxide precipitation. This problem can be alleviated through the use of a non-toxic chelate (L), such as citrate or polyacrylic acid (PAA). The addition of a chelate allows the reaction to take place at near neutral pH and control hydrogen peroxide consumption. This chelate can be incorporated either into the aqueous phase in soluble form or in a polymer matrix. Our group has performed polymerization of a polyelectrolyte within a synthetic membrane for Fe(II) capture and subsequent reaction with hydrogen peroxide. In addition, a membrane containing an immobilized enzyme, glucose oxidase (GOX), can be used to produce hydrogen peroxide from a readily available source, glucose.

211-10 Health Care for Elders: Does an Aging Population Really Drive the Demand for Health Care? Jitendra Singh, Gerontology, University of Kentucky.

Health care expenditures for elderly people have outpaced U.S. GDP by 3.5 to 4% per year in recent decades. A popular myth fueling the debate on U.S. health policy is that the aging of population is the major driver of the national demand for health care and that it is the major cause of the accelerated growth in national health spending. This presentation is an attempt to explain that other factors are at work. The argument is based on information derived from the literature as well as information from the Medical Expenditure Panel Surveys (MEPS). Despite the fact that per capita health spending for older adults is greater than for their younger counterparts, in fact, the aging of the population is too gradual a process to be the major and driving force behind the annual and rising cost in health care expenditures.

211-11 Transitioning to teaching: The Identity Development of Two First Year Literacy Teachers. Lindsay P. Grow, Curriculum and Instruction: Education, University of Kentucky.

The identity development of first year teachers, in the case of this study first year elementary literacy teachers, is a complex process of negotiation. Situations from the past and demands from the present all converge and intertwine as new teachers make their way in the figured worlds (Holland, Lachicotte, Skinner, & Cain, 1998) of their classroom. Three contexts of identity as identified by Holland et al., figured worlds, positionality, and space of authoring are used as a lens to explore the literacy teaching identities of two fourth grade teachers. These teachers graduated from the same university but taught in different schools and had differing childhood literacy experiences, making for interesting cross case comparisons about the role of divergent variables on identity development. Analysis of how these teachers wove together their identity as literacy teachers in their first year provided the ability to interpret important findings and implications. Themes explored include: context, agency, background experience with literacy, and the influence of standardized testing pressures. Implications for inservice and preservice teacher education programs are included. Implications are also relevant to others interested in the study of identity and those interested in how individuals make their way in a new profession.

211-12 Operation Inoculation: Determining the Feasibility of Operating a Large-Scale Drive-Thru/Walk-Up Immunization Clinic at a Rate Exceeding 1000 Vaccinations/Hour Using Modeling and Simulation in the Planning and Implementation Process. Pretesh Parmar, Department of Environmental Health and Safety, University of Louisville.

Abstract Authors: Pretesh Parmar BS (Presenter), Caitlin Shelton BS (Presenter), Thomas van de Kracht MS, Dennis Sullivan BA CEM, Matt Zahn MD, Sunderesh Heragu PhD, Ruth M Carrico PhD RN CIC

Background: The University of Louisville (UofL) was asked by the local health department to assist with a community-wide H1N1 immunization event to rapidly administer vaccine to high-risk groups. Collaboration across 3 different disciplines at UofL helped produce a strategic model that could be implemented to meet the needs of the event.
Setting: Louisville Metro area of approximately 750,000
Target Population: High-risk adults and children
Methods: Using insights gained from smaller immunization events, collaborative efforts between specialists in public health, emergency planning, and engineering from UofL developed a logistical plan for a large-scale immunization clinic. This plan included a simulation model that tested assumptions including vehicle inter-arrival time, the number and types of patients per vehicle, and vaccine administration time.
Results: During operation of the 19-hour event, a total of 19,079 vaccines were administered. Utilization of a simulation model allowed planners to visualize the complex plan and maximize efficiency of the operation. Visual representation of the process flow, by means of the simulation model, was instrumental in gaining support from stakeholders as well as in event planning. Extensive collaboration between numerous university departments and schools, the local health department, and other entities was crucial to the success of what achieved the title of being the world's largest immunization clinic.

211-13 Gender differences in nutritional health and physical fitness during the transition into college. Katie J. Adams, Exercise Physiology, University of Louisville.

Abstract Authors: Katie J. Adams, Dr. Dean Jacks, Dr. Robert Topp.

Obesity is an increasing issue among all age groups in America. Previous research concluded most college freshman gain weight during their first year of college with estimates ranging from .73 to 1.1 pounds per month. This emerging problem is directly attributable to declining levels of vigorous physical activity and poor nutritional uptake. Beginning college is a unique time as

young adults learn to be solely responsible for making lifestyle choices regarding nutritional intake and physical activity. The purpose of this study was to offer a 10 week intervention to incoming freshman regarding healthful choices to investigate how the approach affects males and females differently. Freshman volunteers at the University of Louisville (n=31) were pre and post tested for physical fitness, body weight, and dietary intake. Students were provided weekly informational sessions and an upper-classman fitness intern for guidance between the testing sessions. Data collected during the pre and post tests were compared to identify gender specific changes. Participants in this study did not gain as much weight as the aforementioned estimates. Males did show greater improvements than females overall. Further investigation should be done to determine how to more adequately aid the female population.

211-14 Mediational Role of Parental Involvement in the Relation between Parental Well-being and Child Outcomes. Sarita Shukla, Educational, School and Counseling Psychology, University of Kentucky.

The importance of parental psychological well-being and its indirect effect on academic and behavioral outcomes have been documented. The current study adds to this literature by examining a mediational model where parental involvement mediated the relationship between parental stress (as measured by parental depression and parental marital satisfaction) and children's academic outcomes. The sample was 12,507 kindergarten students taken from ECLS-K data set. A full SEM analyses was conducted to test the proposed model. While the results of the SEM analysis provided very modest evidence to support the notion that parental variables influence academic achievement of their kindergarten children; there is need for interdisciplinary research that examines this question since the results will not only be beneficial to the field of education but also other disciplines like family studies.

211-15 Dressed to Kill: The traje de luces outside the ring. Vikki A. Medhurst, Theater, University of Kentucky.

This research examines the 'Suit of Lights' as an integral part of the bullfighting performance and the effect that it has on the central figure in the ring, the matador. To better understand the ritual of adorning this costume it has been necessary to consider both the construction and embellishment of the garment and apply historical knowledge of the performance to this research. As a fundamental part of Spanish culture and national identity, the bullfight has developed from the sixteenth century into the performance in three acts that it is today, and continues to grow with popularity. On completion of the research an in depth understanding of the 'Suit of Lights', the history of the costume and reproduction will be accomplished. This research can then be applied to theatrical use of the costume outside the bullring, in particular for the role of Escamillo in Bizet's opera, Carmen. Techniques for reproducing the embellishments have been explored and a thorough understanding of the 'Suit of Lights' reached.

211-16 Evaluation of a Mass H1N1 Immunization Clinic in Louisville, KY. Tifany L. Ables, School of Public Health and Information Sciences, University of Louisville.

On November 11th and 12th, 2009, the Louisville Metro Department of Public Health and Wellness, in Louisville, KY, held the city's first mass immunization clinic. This clinic offered residents drive thru and walk-in access to free H1N1 vaccine at Papa John's Cardinal Stadium. Although no people were turned away as long as vaccine remained available, the clinic was primarily intended to vaccinate the most high risk groups such as pregnant women and children 6 months through 4 years of age. This clinic was also designed to serve segments of the Louisville population that may live in "vaccine deserts", which are areas that ordinarily offer residents limited or no access to the vaccine. The purpose of this presentation is to analyze the success of the mass clinic at reaching both target high risk populations, and residents living in vaccine deserts. This presentation discusses whether any

future clinics of this nature would be beneficial for both the Louisville Metro community, and for other comparable large cities.

211-17 Pediatrics Sports and Athletes: Stemming the Gap between In-Activity and Overuse. Elizabeth A. Hawkins, Nursing, University of Kentucky.

This research effort is a collaboration between the sciences of sports medicine, athletic training, pediatrics, nursing, community coaches, and formally trained coaches. The goal is to develop a manual for use for community coaches without formalized training for use in strengthening and conditioning the pediatric athlete in an effort to decrease the burden of pediatric sports injuries that might have lifelong effects decreasing activity levels and abilities.

It has been developed with the help of the above mentioned disciplines. A pilot study is being conducted to determine the usefulness and appropriateness for possible use in this population. At this time, results are pending.

211-18 Effects of Maturation and Loading on Tenocyte Gene Expression. Lauren G. Detlefsen, Veterinary Science, University of Kentucky.

Abstract authors: Lauren G. Detlefsen, Dr. James N. MacLeod, Dr. Janet Patterson-Kane.

The equine superficial digital flexor tendon (SDFT) is an energy-storing structure subjected to high levels of mechanical strain with a correspondingly high injury rate. In contrast, the anatomically opposing common digital extensor tendon (CDET) is a positional tendon that functions only to transmit muscular force. Positional tendons rarely experience injury due to biomechanical variables. Changes in tenocyte gene expression were studied as a function of age and in association with the biomechanical loading differences that occur between spring-loaded and positional tendons. Total RNA was isolated from tendon samples collected at the mid-metacarpal segment of the SDFT and CDET in five groups of

Thoroughbred horses: late gestational fetuses, foals 0-2 weeks of age, foals 1-6 months of age, 2-7 year-old horses that never raced, and 2-7 year-old racehorses. Steady-state mRNA levels were measured for six genes using quantitative RT-PCR: type I collagen (COL1A 2), type III collagen (COL3A1), cartilage oligomeric protein (COMP), prolyl 4-hydroxylase (P4HA1), transforming growth factor-beta (TGFB), and tenascin-C (TNC). The largest differences in tenocyte gene expression were observed between the fetal and adult horses in both the extensor and flexor tendon groups.

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