

Talk and Performance Abstracts

(In alphabetical order by author)

Khaled Abuhasel; Industrial Engineering, New Mexico State University

Algae-Derived Fuel Production And CO₂ Sequestration

Rising fuel costs and global warming have led policy makers and scientists to look for alternate less costly and beneficial approach to fuel production. Algae are not only a great substitute for biofuels, ethanol, and methane but also consume CO₂ during fermentation. However, extracting carbon dioxide from the atmosphere to ferment algae is a costly process. The proposed method provides an opportunity to extract CO₂ and consists of a wet scrubbing technique where potassium hydroxide (caustic potash) solution is used as the sorbent. The technique will extract CO₂ from air then return the CO₂ to a gaseous form after several chemical transformations. A yield of 2.9 kg CO₂ p/h or 25404 kg (~ 25.4 tons) CO₂/yr would be possible using a collection unit of 1 m² area, with 40% efficiency and 3m/s wind velocity. This will equate to \$1400 per 5 years assuming a 5 year cost write-off period. This would include caustic potash bath, calcium hydroxide tank, water separator, kiln, condenser, and compressor costs. Adding maintenance costs will amount to \$1820 per 5 years, hence a collection cost of \$7.2/ton CO₂. To process the CO₂ to a usable form requires ~0.15 tons of coal per ton of CO₂. At \$25/t, the cost of coal would add \$3.75 per tons of CO₂. With these assumptions, the calcinations process contributes \$15/t of CO₂ to the cost of the capture process. Hence, the total cost will be \$25.95 per ton of CO₂ – A reasonable price as compared to the other sequestration technologies.

Krysten Aguilar; Anthropology, New Mexico State University

Conservation of Culture and Biodiversity: Cultural Memory Banking at Tesuque Pueblo, New Mexico

The purpose of this study is to document the cultural, biological, and ecological components of squash cultivation at Tesuque Pueblo, New Mexico, in order to conserve cultural and biological diversity by utilizing cultural memory banking within a dynamic, interactive database. Cultural and biological diversity are intrinsically linked; the conservation of one leads to and supplements the conservation of the other. As our food crops become less diverse through modern agricultural practices, there is an ever greater need for the conservation of genetic diversity in agriculture. Many traditional indigenous farming systems cultivate biodiversity in an ecologically sound and sustainable way. These agricultural systems are integrated within the culture, where traditions and practices reinforce the ways that food crops are chosen, cultivated, and consumed. By documenting the traditions and crop varieties found in traditional farming systems, diversity on all levels can be sustained and nurtured. The database in this project will be composed of culturally relevant information on squash varieties found within Tesuque Pueblo. Oral histories, squash specimens, and farming techniques will together make up this memory banking project to be used within and by the community. The aim of this research is create a foundation from which to maintain and conserve the diversity of farming techniques and crops, recognizing the inherent rights of indigenous communities to their traditional resource and knowledge rights.

Nabil Al-Aqtash; Physics, New Mexico State University

First-Principles Studies of Functionalization and Substitutional Doping of Graphene and Carbon Nanotubes

Theoretical studies of nanoscale systems, such as functionalized carbon nanotubes and graphene, present major challenges to computational methods employed in quantum chemistry and condensed matter physics. For this reason, accurate numerical calculations for functionalized CNTs and graphene require a direct quantum mechanical approach. This work presents first principles calculations using density functional theory (DFT) to study a selection of functionalized and doped graphene and carbon nanotubes. The calculations are performed using density-functional pseudopotential computational methods combined with the generalized gradient approximation for the exchange-correlation functional. The structural optimization of graphene and carbon nanotubes is carried out by energy and force minimization. We investigate the chemical functionalization of graphene and carbon nanotubes with carboxyl (COOH) groups. The binding energies, equilibrium geometries, and the charge transfer of graphene sheets and carbon nanotubes are examined. We find that the attachment of carboxyl groups induces substantial structural changes in graphene and carbon nanotubes. Our calculations show that the binding of the carboxyl group is significantly stronger in the presence of surface defects. Doped graphene and carbon nanotubes with Boron and Nitrogen atoms

are studied. The calculations confirm that boron-doping increases and nitrogen-doping decreases the binding energy of carboxyl groups to both free defect and defective graphene and carbon nanotubes. The interactions between boron (B) and nitrogen (N) atoms doping graphene are examined. The B-B and N-N interactions are found to be repulsive and the B-N interaction to be attractive.

Mais Turki Al-Khateeb; English, New Mexico State University
Rethinking the Position of Writing Within the Jordanian University Context

English majors in Arab countries in general and more specifically in Jordan have been described as poor communicators when speaking and writing in English. These communication problems highly affect the academic and professional lives of those individuals because they are required to communicate effectively in English on a daily basis at school and at work. Scholarship on communication problems of English majors reveals that students are not being prepared to meet the demands of communicating in English at work or in further academic study. The major solutions offered to solve these problems have been to change certain pedagogical strategies or reconstruct English department curricula with more linguistic or literary focuses. In this presentation, I argue that the proposed solutions have failed for two main reasons; first, they overlook the significance of writing in relation to creating fluent learners and effective communicators. Second, they deal with writing as a product rather than process, a definition inconsistent with what the society and the marketplace expect of English majors in Jordan. Thus, I contend that reestablishing the position of writing as a process within the curriculums of English departments in Jordan is a stepping stone for creating effective communicators who are able to succeed academically and professionally. I draw on Composition theory, Second Language Writing theories, and Literacy Studies and offer specific practices for reestablishing the position of writing, which would be more suitable given the social and cultural context of Arabic countries, like Jordan.

Mina Alinejad, Tiffanie Phillips; Business, New Mexico State University
Discovering Intelligence and Security Career Opportunities (DISCO)

This project is one component of the National Security Preparedness Project (NSPP), performed under the Department of Energy (DOE), National Nuclear Security Administration (NNSA) grant under the direction of the Arrowhead Center at New Mexico State University. The purpose of DISCO is the development of a marketing project to stimulate awareness and interest in careers in national security technologies among middle and high school students. DISCO built on workforce development research previously conducted in the NSPP and emphasized the fact that careers utilizing majors in all fields are possible. The DISCO project was composed of four parts: 1) Review of previous research to determine workforce needs at NNSA. Research to determine best practices for marketing efforts aimed at middle and high school students. 2) Focus groups to gain feedback from middle and high school students regarding current interest in national security technology and STEM focused careers and interest in pursuing education following high school. 3) Marketing theme created using the information gained in previous activities. Marketing materials developed: Youtube videos, informational DVDs, brochures, promotional give away items. 4) Pilot tests conducted for all marketing materials at grade levels 6 - 12. Changes made to the marketing materials based on feedback received during pilot testing. When in final format, all materials will be given to the New Mexico Public Education Department for distribution to all New Mexico 6 - 12 graders beginning in fall, 2011.

Waleed Alkohani; Electrical and Computer Engineering, New Mexico State University
Generating & Using Synthetic Traces for Memory Simulation

The performance gap between memory and processor has been growing steadily to the point where processors now operate hundreds of times faster than memory. Memory behavior has become the principal determinant of whole application performance. Therefore studying the performance of memory and the application's memory behavior is essential for manufacturers to build faster systems, for customers decide which system is right for them and for programmers to understand and optimize their applications. To achieve this goal, application memory traces are simulated in either functional or detailed memory simulators. These traces are huge and one simulation run can take from weeks to months to finish. Hundreds of simulation runs are needed for a comprehensive performance study and this can be extremely costly in terms of time and computing resources. We present the idea of generating and simulating small synthetic memory traces that statistically represent the original trace yielding much faster speedups. We first compute various statistical distributions from the original trace, and then we randomly sample those distributions to generate a synthetic trace. The generated trace is simulated until performance converges to a steady state value. Using this method, memory trace simulation can be hundreds of times faster.

Waleed Alkohlani; Electrical and Computer Engineering, New Mexico State University*Monte-Carlo Processor Performance Modeling & Simulation*

With the complexity of contemporary single- and multi-core, multi-threaded processors comes a greater need for faster methods of performance analysis and design. Cycle accurate simulation has long been the primary tool for micro-architecture design and evaluation. However, due to their extremely slow speeds and many other drawbacks, it is no longer practical to use only cycle-accurate processor simulators for design space analysis of modern processors and systems. Therefore, we propose a statistical processor modeling methodology based on Monte Carlo techniques. Using this methodology, fast and accurate predictive processor performance models can be built. We present details of the methodology as it applies to single- and multi-core in-order processors and show results of simulating the Sun Niagara 2 and Intel Itanium 2 processors. We show that we can accurately predict single- and multi-core performance within 7% of actual on average, and we can use the models to quickly pinpoint performance problems at various components.

Sufian Alnemrat; Physics, New Mexico State University*Kinetic Separation of Carbon Dioxide and Methane on a Copper Metal-Organic Framework*

Separation of carbon dioxide and methane is an important issue in upgrading low-quality natural gas. Adsorption equilibria and kinetics of CO₂ and CH₄ on copper metal organic framework (MOF) were investigated to evaluate the feasibility of removing CO₂ from CH₄ in a pressure swing adsorption process using this new MOF adsorbent. The heat of adsorption of CO₂ on Cu-MOF at zero-coverage (29.7KJ/mol) is much lower than those on carbon molecular sieve and zeolite 5A adsorbent; and the heat of adsorption of CH₄ (21.4 KJ/mol) is similar to that on the zeolite 5A adsorbent and smaller than on a carbon molecular sieve. The Cu-MOF being investigated has apertures of (~3.5*3.5Å) which favors the kinetically controlled separation of CO₂ and CH₄. The kinetic selectivity is found to be 26 at 298 K and 3.2 kPa, and the overall selectivity is about 25 for an adsorption separation process.

Haytham A Alodan, Steven Hespeler; Industrial Engineering, New Mexico State University*New Wood Plastic Composite Material Based on Innovated Combination of Chile Fibers with Polyethylene Polymer*

Wood has long been used by the plastic industry as a filler to reduce cost. During the last decade, researchers started to investigate high level of wood and plastic (i.e., thermoplastics and thermosets) combinations with functional additives, such as, coupling agents, UV stabilizers, antimicrobial additives, and antioxidants to encourage the interaction between wood and polymers, as well as, enhance the properties. Today's market demand of wood plastic composites (WPC) is approximately two billion dollars. With increasing usage of WPC products, introducing new applications, increasing of market confidence in WPC, and improve the properties to satisfy extreme requirements, demand is forecasted to reach approximately five billion dollars in 2013. Chile leafs and stems represent a potential source of fibers that have not been utilized. Since wood represent 40% to 60% of WPC, estimated production of WPC based on chile plants is about 30,000 tons in New Mexico State. This research studies a new WPC material based on an innovated combination of chile fibers with polyethylene polymer. Analysis of the effects of proportions and sizes of grains of plastic on mechanical properties of this new material will be done. The method consists of two stages a) implementation of design of experiments technologies to find the significant factors affecting mechanical properties of the new material and b) used on response surface methodologies for parameters optimization. Results show that optimal proportions of components and grain sizes of wood and polymer are found, as well as a proposed formula for molding technique is proposed.

Alejandro Alvarado; Industrial Engineering, New Mexico State University*Intelligent Systems for Quality Defect Prediction in Injection Molding*

This study presents an approach to predict quality defects in injection molding using recurrent neural networks. Injection molding complexity is a source of variations related to plastic behavior that affects quality of molded parts. Therefore, if plastics behavior (i.e., melt flow, melt temperature, melt pressure, and cooling rate) is well understood, some decisions about the process may be taken. For instance, monitoring melt temperature may prevent defects such as sink marks. Moreover, predicting quality defects using plastic behavior variables may prevent the development of defects in a finished product. The approach consists of using recurrent neural networks (RNNs) as a prediction tool. RNNs are like a dynamic system, where information is temporally memorized in the network; thus, based on previous information some predictions can be made. Recurrent neural networks are well known for their adaptability and flexibility in nonlinear systems. A combination of two recurrent neural networks are employed, namely Elman

and Jordan networks. Here in, RNNs are used to predict defects in injection molding. A real time algorithm is used for improving network performance. The results are expected to be more accurate than those showed by statistical techniques and feedforward neural networks.

Jose A. Alvarez V.; Second Language Acquisition and Teaching, University of Arizona

New Learning Environments on the Web: Implications for English Language Learners and Teachers

Language teaching and language learning have faced several new challenges that have emerged from current technological developments such as the internet. In particular, Web 2.0 has brought a new generation of language learning tools that are changing the way people learn languages. The primary aim of this presentation is to discuss the pedagogical implications that underlie the new generation of language learning websites. Grounded in the conceptual tradition posed by Computer-Assisted Language Learning (CALL) and multimodal semiotics, the presenter will show outcomes from a semiotic analysis of design, modes, and means of various language learning websites. Conclusions indicate that these websites - as new learning environments - present new roles for learners, teachers and for instructional materials.

Tita Berger; American Studies, University of New Mexico

Irrigating a Modern Nation: Reclamation, Nation-Building and Critical Regionalism

How did reclamation reconfigure the symbolic and material work of nation-building in the early decades of the 20th century? The desire to create irrigated and dependable agricultural production out of great arid sweeps of arid land in the West was a vital national narrative at the turn of the century. Irrigating was also one of President Roosevelt's favorite political issues when he signed the Reclamation Act on June 17, 1902, creating a federal policy that literally remade the landscape of the West. But reclamation was far more than physical nation - building - it was a powerful narrative of symbolic nation-building. Reclamation embraced two diametrically opposed narratives, with its grand projects, sweeping federal oversight and extensive bureaucracy that promised to produce a new nation of small independent farmers. It was a paradox of ancient technique and modern scientific methods. Engaging the theoretical lens of critical regionalism, this paper explores how reclamation reconfigured the symbolic and material work of nation-building in the early decades of the 20th century. One of the earliest projects undertaken by the newly established Bureau of Reclamation, the Rio Grande Projects Elephant Butte Dam, serves as a critical case study.

Nancy Blecha; Sociology/Women's Studies, New Mexico State University

A Meta-Analysis; Sociological and Psychological Control of Abuse Information and the Failure to Educate the General Public

Early childhood behavior and the nonverbal cues learned incorrectly set the stage for individuals to take on roles as a bully, bully-victim, and/or victim. These roles, if allowed to continue into adulthood, culminate in domestic violence scenarios. The early childhood markers are clearly identified. Empathy training within the school system is an effective remedy. However, addressing the bully, bully-victim, victim roles assumed by children is ignored, contributing to the continued domestic abuse trends. This paper briefly investigates why inappropriate childhood behavior is not addressed. An effective method is proposed to counter that inappropriate behavior in order to engender more healthy interactions between individuals.

Jayson Briscoe; Electrical and Computer Engineering, New Mexico State University

Periodically Coupled Plasmonic Nanowell Structure for Refractive Index Sensing

Classical optics holds that a wave cannot propagate through subwavelength gaps, however, discoveries from Ebbesen et al. have shown the phenomenon of Extraordinary Optical Transmission (EOT) through nanohole arrays. It has been theorized that this transmission is due to the presence and assistance of surface plasmon polaritons (SPP) existing at the metal-dielectric interface. Existing SPP modes offer a high surface sensitivity to a changing refractive index and this has encouraged the development of highly sensitive refractive index sensors. The nanowell sensor differs from traditional sensors in that due to its high Q resonant mode the transmission spectra is extremely narrow and intensity interrogation, rather than angular or wavelength interrogation, can be used. This important difference removes: the need for complex coupling systems, error from ambient vibration, and the rough transition curve evident in real-time sensing. FEM modeling of this structure reveals near 100% transmission at 815.8 nm with an FWHM of 6 nm. The sensitivity of this structure is calculated to be 4800% RIU-1.

River Bullock; Art History, University of Arizona

Complicating the Ideal: Systems of Representation in Nineteenth Century science

The alignment of nineteenth century sciences with the increased development of optical devices encouraged the formation of a moral code for documentation. The resultant moral code was characterized by self-restraint and a stringent elimination of judgment or interpretation in representation. This paper provides an examination of retinal memory drawings and stop-motion photography implemented by British physicist Arthur Worthington's study of hydrodynamics and hydromechanics in "The Splash of a Drop and Allied Phenomena," (1893-1895). I argue that these two forms of documentation, the idealized drawing and the sequential photograph, exhibit a transitional point from the formation of an idealized representation to a representation dictated by mechanical objectivity. The introduction of mediated vision placed increased emphasis on objectivity in the sciences. The changing definitions of objectivity reflect shifts of trust and values, in systems of representation. These transitions evidenced in the practices of nineteenth century scientists, such as Worthington, mark the ideological removal of the observational eye from the body, and its placement in mechanical devices and optical instruments, such as the camera. Worthington's experiments are considered within a multidisciplinary context that reflects the professionalization of the visual culture of science as inextricable from the now delineated fields of the history of science, philosophy, and art.

Melissa A. Currie; Landscape Architecture, Texas Tech

The Role of Women in Shaping our Built and Natural Environments

Women have contributed to our built and natural environments in many important ways. This influence is seen in the buildings, landscapes, urban forms, and natural environment that make up our world. In nature, one is often reminded of the female's home-building role, searching far and wide for just the right materials and location to create suitable habitation for her family; a home she will valiantly defend. In the US, women have played a pivotal role in the making of our collective habitat - both built and natural. If not for the foresight, perseverance, and dedication of strong and determined women, many of our most precious national treasures would have been lost forever, or perhaps never even created. Women have shaped our world, working with diligent commitment, even though often unseen and unrecognized, to create our buildings, city forms, towns, gardens, or memorials. Many times she has been the voice of reason or alarm, a vanguard for community. Her purple strand of influence is woven throughout our collective memory to fashion history's fabric into a pattern that would be profoundly less sonorous without it. Acknowledging this influence is an essential component to the relating of a complete history of our nation, adding depth and meaning to our national heritage. This essay highlights important contributions of American women such as Ann Pamela Cunningham, Lady Bird Johnson, Rachel Carson, Jane Jacobs, Martha Schwartz, and Elizabeth Plater-Zybek in the fields of historic preservation, architecture, landscape architecture, urban design, and social commentary.

Om P. Dahal, Harish Beemaraj; Electrical and Computer Engineering, New Mexico State University

Yearly Electric Energy Consumption Forecasting of Different Sectors in US and Its Some Sunbelt States

Electricity has become an integral part of our day-to-day life. We cannot imagine the world without electricity. Developed country like USA, consumes a very large amount of electric energy. USA is the top ranked electricity consuming country in the world with yearly consumption of 3,873,000,000,000 MWh / year as per US central intelligence agency data. The most disadvantage part of power generation is that there is no device to store large amount of electricity. Pre-plan requires supplying continuity and quantity of required electric energy. Therefore predicting the future electricity demand that will be required to feed the mankind becomes a highly important issue to address with, so as to act and prepare beforehand the workforce and infrastructure needed to meet the requirements. This project mainly focus to predict the amount of electric energy that will be needed by various sectors like residential, industrial, commercial, and transportation for whole United States of America and some of the sun-belt states of USA which are California, Arizona, New Mexico and Texas. Regression technique is used to forecast the future energy demand.

Diane Daly; School of Information Resources and Library Science, University of Arizona

Informing an Inclusive Virtual Research Environment for Breast Cancer

Breast cancer awareness campaigns have been very successful in raising disease awareness since they were initiated in the 1980s, with breast cancer research receiving more funding relative to both occurrence and mortality than any other cancerous disease. It can be inferred from investigations into data stewardship in medical and other sciences

that this situation has led to the generation of massive amounts of research data, much of which may be at risk of loss or destruction due to the lack of standards for data curation. Meanwhile, another result of breast cancer awareness campaigns has been heightened concern among consumers about the disease, leading them to supplement medical information with their own research online, where valuable resources are often obscured by misleading and excessively voluminous results with no vetting process for source or quality. A paradigm-changing platform for breast cancer research stewardship and discovery could be one that brings medical and consumer researchers together in an environment that offers preservation, organization, access, and collaboration. This presentation, through graphic display in a poster and in digital resources, includes a series of integrated projects designed to direct consumers to digital breast cancer resources while reporting on the quality of information that is accessed. Also included is a paper presenting a collection of literature, evaluating prospects and models for an inclusive breast cancer Virtual Research Environment. Components of this project were created by the presenter, Diane Daly, with assistance by fellow University of Arizona student Sara Owens.

Kyle DeGrave; Astronomy, New Mexico State University
Validation of Helioseismology Techniques Using Realistic Solar Simulations

Helioseismology - the study of seismic wave propagation in the Sun - is the only set of tools astronomers have to probe the unknown structure of the solar interior. Time-distance helioseismology is one method that aims to produce three-dimensional maps of solar interior inhomogeneities (flow speeds, density perturbations, etc.). These maps will eventually help us understand the physics of, for example, active flaring regions, sunspots, and supergranulation. Robust application to realistic solar simulations allows us to test these helioseismic techniques with known answers, and therefore validate the methods before attempting analysis of real solar data. We show that this approach is feasible with a fully-consistent determination of the flow parameters of a simulation, using two-dimensional sensitivity functions and a flexible inversion algorithm.

Sean G. Dolan; Anthropology, New Mexico State University
Source Provenance Analysis of Archaeological Obsidian from Kipp Ruin (LA 153465), Luna County, New Mexico

The source provenance of thirty obsidian artifacts from Kipp Ruin (LA 153465), a multi-component Mogollon site on the lower Mimbres River near Deming, NM was analyzed by X-ray fluorescence (XRF). Because obsidian can be chemically sourced, this material can be an excellent proxy to estimate temporal and spatial changes on an archaeological site. The purpose of this study sought to determine the procurement patterns at Kipp Ruin because of its long occupation spanning the entire Pithouse and Pueblo periods. Analysis suggests that during the Pithouse period (A.D. 200-1000) the occupants obtained and/or used southern obsidian sources primarily Sierra Fresnal in northern Mexico more than other sources. During the Pueblo period (A.D. 1000-1450), the occupants at Kipp Ruin decreased this pattern and used obsidian from a broader range of locations. This research increases the sample size of sourced obsidian artifacts for southwestern New Mexico and helps to answer site specific questions about Kipp Ruin, mainly procurement patterns and lithic manufacturing strategies during the Pithouse and Pueblo periods.

Sean G. Dolan; Anthropology, New Mexico State University
Solving a 1.6 Million Year Old Mystery Case:
A Reexamination of KNM-ER 1808, a Homo Erectus Individual from Lake Turkana, Kenya

The use of paleopathology in the archaeological and paleontological record can be a way to understand the evolution of diseases as well as the behavior and culture in human and non-human primates, however it can be overlooked and possibly underreported when it comes to the human fossil record. The Homo erectus partial skeleton, KNM-ER 1808 is an exception because it exhibits a bone pathology not seen in other Plio-Pleistocene hominids. Walker et al. (1982) concluded that this individual suffered from chronic hypervitaminosis A, while Rothschild et al. (1995) states that KNM-ER 1808 exhibits the oldest case of the treponemal infection yaws in prehistory, which is up for debate because it is not possible to differentiate between the different treponemal infections in isolated skeletons. Casts, x-rays, and photographs of KNM-ER 1808 were compared to the paleopathological literature to refute Rothschild et al. (1995). The treponemal diseases often show lesions on the frontal bone and anterior tibial bowing. Examination of KNM-ER 1808 indicates that frontal bone lesions and anterior tibial bowing is absent. Genetic and paleoenvironmental studies also suggest that KNM-ER 1808 probably did not suffer from a treponemal infection 1.6 million years ago. Hypervitaminosis A, does not have a large or accessible sample size to compare, therefore it cannot be excluded based on this research.

Santosh Dulal; Biology, New Mexico State University

A Purine Metabolism Mutation in Staphylococcus Aureus Through Selection on 2-fluoroadenine is Associated with Increased Antimicrobial Susceptibility Levels

The use of genomic technology has provided a clearer understanding of the genetic determinants influencing antimicrobial susceptibility in *Staphylococcus aureus*. The differential regulation of purine genes in *S. aureus* in response to stress has led researchers to inquire the role they play in antimicrobial susceptibility. In order to ascertain the role of altered purine biosynthesis, we have isolated and initially characterized a laboratory *S. aureus* strain (SH1000) harboring a mutation in purine gene *apt* (adenine phosphoribosyltransferase). Methods: SH1000 cell populations were inoculated onto Luria Bertani agar containing 12.5 mM 2-fluoroadenine (2-FA) leading to the acquisition of four SH1000 2-FA mutants. *apt* was amplified and sequenced for SH1000 and 2-FA mutants and subsequent characterization was performed through the use of MICs, gradient plate analysis, growth curves, and Kirby Bauer susceptibility studies. Results: Mutants were found to have increased resistance towards 2-FA with all exhibiting MICs > 20 mM 2-FA, whereas parent strain exhibited an MIC < 5 mM 2-FA. Comparison of sequence data from parent strain SH1000 and SH1000 2-FA mutants revealed SNPs located in *apt* for all mutants. Growth studies (in the presence or absence of 10 mM adenine) demonstrated an overall reduction of growth rate in 2-FA mutants when compared to parent. Gradient plate analysis and Kirby Bauer susceptibility studies revealed increased susceptibility towards various antibiotics. Significantly reduced susceptibility levels were found for all mutants against cefamandole, ceftazidime, ciprofloxacin, and vancomycin. Conclusions: *S. aureus* 2-FA mutants display altered antimicrobial resistance and growth due to metabolic changes in purine biosynthesis. As purines are known to control many biochemical and developmental reactions, understanding the role of purine metabolism and compensatory metabolic alterations may provide answers and strategies into the acquisition of reduced antimicrobial susceptibility.

Floyd Michael Elliott; English, New Mexico State University

Articulation of Voice in Poetry

In my presentation/poetry reading, I will show how the flexible and dynamic potential of the poetic line can be manipulated like no other literary form to bring forth unique voices, selves, and identities. Using paratactic juxtaposition I will show how a poem can be inhabited not just by a single self or voice, but by many, creating a poly-vocal template upon which we, as readers, can view the lives of those the poem seeks to articulate/represent. Key to this is an acknowledgement of the personality quirks of each character, the omnipresence of setting, a keen attention to the quotidian in everyday life, and of course the use of image and the lyric.

Lisa Jo Elliott; Psychology, New Mexico State University

Luck or Intuition?

Often extraordinary performers attribute their success to luck or the set of the right circumstances at the right time (i. e. Sully Sullenbergers landing on the Hudson River). However, research in inductive reasoning, problem solving and expertise suggests that extraordinary performance has little to do with circumstance or luck and more to do with intuition. Intuition, a common description of inductive reasoning, is thought to exist in varying levels in all of us. A key component of intuition or inductive reasoning, is cue noticing the ability to pick out the key aspects of an environment on which a solution may be built. In previous inductive reasoning studies, the ability to pick out cues is strongly correlated to a persons ability to solve the problem. People who pick out deep structural cues on which to base a solution are more likely to provide a usable solution to the problem than people who choose shallow surface cues. As the ability to pick out the deep structural cues is an indicator for performance in problem solving, it may also be an indicator in professional domains in which cues noticing is important. The study examines the relationship in professionals between the ability to notice salient cues, reasoning, and professional performance factors.

Rafael Espinoza; Curriculum and Instruction, New Mexico State University

The Lived Experience and Perceptions of Being a Distance Learner: A Phenomenological Study of a Web-based Education Program in Latin America (Web-Latina)

This phenomenological study documents and explores the living experience of participants in a Web-based distance program in Latin America (Web-Latina), and the meaning that they make of that experience. The purpose of this study was to answer the following question: What are the lived experiences and perceptions of being a distance learner in a Web-based Education Program in Latin America (Web-Latina)? In order to gain access to the meaning of the lived experiences and perceptions of the participants experiences as students in a Web-based education program, an

online survey of 105 students experiences with Web-based courses was applied. The survey participants represented 25 countries throughout Central and South America and the Caribbean Islands. During spring and summer 2010 narratives were obtained by means of three, 90-minute, phenomenological-based, in-depth interviews conducted with 20 of the participants. Thematic analysis with categories was used as a means of identifying dominant themes. The survey revealed that participants were concerned with the lack of interaction and communication within the Web-based courses and reported it affected how they felt about the course. The participants commented specifically about the lack of interaction with other participants and the need for more social presence of the instructors. The phenomenological research revealed four thematic categories concerning the lived experience and meaning of being online learners: (1) Web-based education as a reflection of one-dimensional Whiteness, (2) Web-based distance education: pedagogy, epistemology, and instructional design, (3) knowledge-based economy: from knowledge to information in the Web-based courses, and (4) Web-based education as commodification merchandise in Latin America. Based upon the findings of the present study, the researcher summarizes struggles, issues and meanings for the participants of this experience of being an online student. Thus, the researcher presents a plan on how to foster a Web-based education program under the pedagogy of democratic praxis that nurtures the consciousness, political actions, and awareness of the professional community within this Web-based context in Latin America.

Ferdinando Fioretto; Computer Science, New Mexico State University
PROTFOLD: A Parallel CLP-based Package for Protein structure Prediction

The paper investigates the parallelization of the Constraints Logic Programming (CLP) based protein folding package PROTFOLD, which is used to predict the 3D conformation of a protein via fragments assembly. Proteins are fundamental components in living organisms that regulate and execute vital functions. The functionality of a protein is directly related to its specific three-dimensional conformation. Protein structure prediction via classic techniques is an expensive and slow process. The method we are approaching is computationally very complex, since it requires an extensive search among many possible solutions. However, the use of constraints make it possible to generate fast and coarse predictions, based on a simplified model, that saves a considerable amount of time when compared to molecular dynamics simulation. The novel approach used in PROTFOLD models constraints from different sources to reduce the search space gaining in performance and quality of results. Moreover, more constraints (e.g. information on the target protein) can be added in future to guide the search strategies, therefore enhancing the quality of the solutions while decreasing the computational time. Current work is proceeding in two directions: modeling new constraints to reduce computational time and to refine and customize the predictions, and parallelizing the package to increase scalability. Our expectations out of this combined approach is to gain up to 2-3 order of magnitudes in computational time when compared to the original CLP based version. These expectations make PROTFOLD appealing to practical applications such as protein docking and prediction.

Pamela Fuhrmeister; Applied Linguistics: Classical and Modern Languages and Literatures, Texas Tech

The Effects of Processing Instruction and Structured Input on the Acquisition of the German Passive Voice

Since the 1970s, researchers have questioned the efficacy of traditional approaches to second language (L2) grammar instruction, which includes explicit information and mechanical drills. Some research has shown that grammatical drills and error correction do not produce beneficial results for L2 acquisition. Since these findings, new input-driven approaches have emerged in second language acquisition research. Among these new approaches is processing instruction, which takes into account L2 learners' natural processing strategies. Processing instruction offers explicit information about processing and structures the input in order to push learners to attend to grammatical form and meaning. The present study, to be carried out in January 2011, investigates the relative effects of processing instruction and explicit information on L2 classroom acquisition of the German passive voice. The study examines three instructional treatments: (1) processing instruction (PI) (structured input activities + explicit information), (2) structured input (SI) only, and (3) explicit information (EI) only. Based on previous research, the researcher hypothesizes that the PI and SI groups will equal each other, showing no effect for EI, and that there will be no effect for the EI-only treatment. The results of this study will provide insight into the effectiveness of explicit information and structured input on L2 acquisition of German grammatical forms.

Amir Gonzalez Delgado; Plant and Environmental Science, New Mexico State University
Coupled Transport of Nitrate and Chloride in Unsaturated Soil Columns

Nitrate, an important nitrogenous compound in fertilizers, is of environmental concern regarding groundwater contamination. Nitrate is weakly adsorbed by soils and could move quickly through the soil profile leading to plant

nutrient loss and groundwater pollution. The purpose of this research was to evaluate the coupled transport of nitrate and chloride in soil columns under different pore water velocities. The transport behavior of nitrate and chloride was studied in 10 cm long-columns packed with sand and loam. A 0.1 M calcium nitrate and calcium chloride solution (1:1) was applied to the soil columns at -0.30 kPa suction. The chloride and nitrate concentrations in the effluent solution were measured and the CXTFIT program was used to determine the two region non-equilibrium transport model parameters. Nitrate and chloride exhibited similar behavior pattern in sand and loam. The dispersion coefficient and retardation factor for nitrate and chloride increased with pore water velocity in sand and loam. Further experiments under field conditions are required to evaluate the effectiveness of prediction of transport behavior of nitrate based on chloride.

Kelsie Hahn; English, New Mexico State University

Epic Fail

In a culture where reading is becoming increasingly electronic and palm-sized, new interest, journals, and publications have emerged over the past several years in the genre of very short fiction. Extremely short fiction, often a scant few pages in length or shorter, is known by many terms: quick fiction, flash fiction, short-shorts, micro-fiction, and others. The definitions and expectations of this form vary and often straddle the line between fiction and prose poetry, and this is a relationship I am fascinated by as an MFA Fiction student at NMSU. I will read selections from my ongoing creative work titled "Epic Fail," an arc of very short fiction that explores both this unique, emerging literary form and the portrayals of great failures in history.

Patrick M. Hanley; History, New Mexico State University

The Grey Zone of History: Fascism and Racism in Europe

The work examines whether or not fascism was inherently racist. This paper seeks to expound on three related points: 1) fascism did not develop in a vacuum, racism was an integral component of European culture in the early twentieth century; 2) the potential for genocide and violence against communities, be they political, racial, or a combination of both, is neither exclusive nor unique to fascism; 3) in many cases the ideological core of some fascist movements lacked racism as an integral component of their ideology. The Italian case is examined first followed by a comparison of racial policy and its implementation in what Timothy Snyder has coined the Bloodlands, and finally an examination of racism and antisemitism in Franco's Spain. The author concludes that fascism is not inherently racist for Italian racism had its foundations in a greater European context, that Nazi policies more closely resembled Soviet policies with regards to perceived enemies, and lastly that Spanish fascism lacked the racial tone of other fascist movements and at times even aided in the escape of those under Nazi persecution. The author also concludes that despite the lack of racism as an integral component of fascism that it was still and radical and dangerous ideology.

Megan Hansen; English, Texas Tech

Subverting the Urban Male Gaze in Christina Rossetti's "Goblin Market"

The mechanics and psychology of vision were important in the urban landscape of the Victorian period; the need to view others clearly literally and figuratively created a booming market for ocular products and procedures, including spectacles, vision protection manuals, artificial eyes, and vision correction operations. Cultural preoccupation with viewing emphasized the individual subject and self-control; every person was both a visual object and an agent of the critical gaze. At the same time, optometric professionals warned that urban culture was overstimulating eyes and prematurely eroding vision, presenting the dangerous social prospect of desensitization. Drawing from Otters work on the sociology of vision in the Victorian period, I pursue in this paper the complications of viewing in Christina Rossetti's "Goblin Market," with a focus on urban Victorian visual culture represented by the merchant goblin men. I argue that the spectacle of consumption orchestrated by the goblins portrays an urban viewing context intended to reduce Laura from individual subject to taxonomized and desensitized object. I also examine Lauras visual perception of the fruit as a reflection of the obscured value and origins of commodities in Londons urban marketplace. Rossetti reveals a culture preoccupied with conserving vision that has, ironically, already compromised authentic viewing through the veiled relationship of consumers and commodities. "Goblin Market" exposes the threats of being viewed and viewing in the urban marketplace for women in particular, but also delivers a moral tale of female empowerment through Lizzies productive market participation.

Richard Harris; History, New Mexico State University

The Art of Violence: Visual Culture and Ideology in National Socialist Germany

As an ideology, National Socialism was intensely concerned with both the visual expression of political ideas and the "Nazification" of artistic culture. This presentation will explore the ways in which the Nazi political apparatus interacted with and impressed itself upon visual expression in Germany in the realm of art as a means to drawing larger conclusions about the radical social realignment pursued by the National Socialists during their time in power. The conflict between modernity and the mythological "racial past" in National Socialist art will be examined in detail, as will selected primary sources on "Aryan" artistic values and precepts. The presentation will also include a brief discussion of visual portrayals of "racial enemies" and "degenerate art" exhibitions under the Nazi government in its pre-war years.

Sherrie J. Harris; University of Texas - El Paso

Sex, Death, & Nursing Ed; or What Nurses Don't Know About Death and Why?

In polite conversation and education, there are two subjects that generally are avoided at every opportunity sex and death. They are provocative and make us uncomfortable because they relate to highly personal views, an individual's culture, and societal norms. Approximately 2.4 million people die in the U.S. yearly, including 55,000 children less than 20 years of age. Who thinks of hospice care for children? Society barely acknowledges hospice care for adults. Demographics of the dying population have changed dramatically since 1900; from diseases and acquired infections to trauma, congenital conditions, and chronic life-limiting diseases of today. Nurses spend more time with patients and their families at the end-of-life compared with other health care providers and offer the greatest opportunity to care for and educate society on EOL issues; yet they receive little relevant content about death and dying at the undergraduate level. Only 2% of critical care textbooks offer adequate EOL content to students. The educational focus is on curative care with graveyard studies generally being ignored. Students who are academically and psychologically unprepared for the dynamics of death in clinical practice add to the high attrition rate of nursing students, and inadequate EOL care to patients by graduate nurses. This presentation proposes a comprehensive thantological curriculum prior to the rigors of a nursing curriculum regarding how we live and die, cultural implications, and effective communication strategies with terminally ill patients, their families, and society.

Larry Lee Hassenpflug II; History, New Mexico State University

Re-envisioning the Role of Museums

The role of museums has long been to provide a place where the general public may be educated informally. The visitor arrives and is subjected to a stream of data wherein he is told what is important, or even what is important to him, and why. New and developing technologies will allow museums not only to teach visitors in a way that will permit them to learn in a manner they control rather than passively absorbing the museum's lesson plans, but to fundamentally alter the way in which visitors interact with museums. Education will not be top-down or bottom-up, but an act of partnership.

Lisa Hennessy; School of Nursing, New Mexico State University

Becoming a Nurse

In response to previous and on-going nursing shortages, accelerated second degree Bachelors of Science in Nursing (BSN) programs have proliferated over the previous two decades. In 1988 there were 10 such programs (Cangelosi & Whitt, 2005). Today, according to the American Association of Colleges of Nursing Research and Data Center (2010) there are 230 accelerated second degree BSN programs in the United States. While there are a number of reports in the nursing literature which quantitatively compare the performance traditional BSN students and graduates to accelerated second degree students and graduates, there are very few studies which qualitatively explore student experiences in such programs, or of the meaning of their success in completing them. As a result, a pilot study was undertaken to explore the experiences of 2 accelerated second degree baccalaureate nursing graduates using Seidman's (2006) in-depth qualitative interviewing method used as the basis. This method involved a series of three 90 minute interviews per participant, undertaken at intervals of approximately 3 days to one week. Each interview was guided by a specific framework of questions designed to elicit their personal stories regarding what led them to seek baccalaureate nursing education, what their actual experiences were as nursing students, and what personal meaning was derived from the experience. This presentation will describe and compare their stories and discuss common themes which emerged during the in-depth interview process.

Brian Hibbs; Second Language Acquisition and Teaching (SLAT), University of Arizona
Reading Children's Literature in Spanish in Two Elementary-level University Spanish Courses

This presentation will present the findings of a research study which investigated students' perceptions of reading children's literature in Spanish in two second-semester university Spanish courses. The presentation will begin with an examination the benefits of reading children's literature for language learning. Next, the presentation will describe the design and methodology of the research study. The presentation will then present the findings of the research study via students' responses to questionnaires, journal entries and focus-group interviews. Finally, the presentation will explore potential applications of the findings of the study to other contexts.

Erica Hobbs; Women's Studies, New Mexico State University
Gurlesque, Fantasy, and A New Way of Looking at Cute

An article by Jennifer Ashton, *Our Bodies, Our Poems*, beckoned for something more than the trifling recognition of women poets; it was a request for innovation in women poets (2008). Perhaps Lara Glenum and Ariel Greenburg were heeding that call when they developed the Gurlesque. In the place of a high-minded or moral stance, these new poems had people bashing one another with candelabras in them, they had unicorns in them, and sequins, and swear words, and vomit. In the place of confessional narrative there was fragment and disjuncture, prose and chant. These poems were silly and scary, pretty and dirty, wild and demanding, (Greenburg, *Some Notes on the Origin of the (Term) Gurlesque*, 2010, p. 4). The poets of the Gurlesque may be thought of as an unruly, unrefined group of women. They are most likely marked as deviants to standards of the feminine poetry world. But what these women are doing is creating a new world of feminine poetry as well as a new world of feminist poetry. This paper examines that new world, and how it is currently being enacted in poetry and other creative forms. The goal of this paper is to demonstrate how these cultural products re-imagine cuteness and how they are expanding our notions of what constitutes feminine and feminist art.

Edward Hyatt; University College, University of Texas - El Paso
An Evaluation of the City of El Paso's 4/10 Workweek Program

The following is an evaluation of the four day, ten-hour (4/10) workweek schedule currently mandated for roughly one-third of the full-time workforce of the City of El Paso (City). Previous reports by City staff were that the 4/10 workweek schedule saves the City substantial amounts in building operating costs and is popular among the majority of employees. This conclusion was primarily based upon reported savings following a three-month pilot in the summer of 2009 and two citywide surveys (one of which was administered before the program was implemented). This author's research has concluded that many of the initially reported savings have in all likelihood been overstated or mistakenly attributed to the 4/10 workweek schedule. Also, the results of a recent employee survey produced by this author in conjunction with the City of El Pasos Human Resources Department has shown that the 4/10 schedule is declining in popularity as compared to the earlier surveys. Given the apparently marginal benefits derived from the 4/10 program, careful consideration should be given to its impact on employee productivity as any savings may be offset by the value of any lost productivity.

Jose Palomino Jimenez; Intelligence and National Security, University of Texas - El Paso
Examining Mexican Drug Cartels Infiltration Into United States Institutions: Corrupted U.S. Financial Institutions

During a recent interview in regards to Mexico's drug war, Secretary of State Hilary Clinton remarked, These drug cartels are showing more and more indices of insurgencies. Although Madam Secretary may have been referring to a Mexican government insurgency, there are other elements that present themselves in the larger context of these Transnational Criminal Organizations (TCOs). Media and others have written substantially about the violent atrocities stemming from Mexico and along the U.S.Mexican border. Not addressed are the specific elements that threaten national security. In particular are the economics and the infiltration or insurgency by Mexican TCOs of U.S. banking institutions. It is my intent to present the relationship between Mexican drug cartels and U.S. banking institutions. The significance of this study may reveal new alternative strategies in fighting TCOs. The operations of the infamous gangster Al Capone were finally disrupted not because of efforts in prosecuting the violent element of his activities, but by tracking his financial trail or following the money. If the supply and demand paradigm is to be sustained, then product and money must be exchanged. Addressing the money in this continuous circle of commerce may offer some new insight. This requires more study. Madam Secretary may have been alluding to the Mexican insurgency threat to its government institutions, but it is more complex. Our southwest border region and respective states are intertwined with Mexico, its people, its money, its corruption, and its drug war.

Diana K.; Government, New Mexico State University

Human Security in Mexico's Democratization: Civil Society's Response to the War on Drugs in Ciudad Juarez.

Can the political ramifications of drug-related violence undermine the democratic process in Mexico? I believe it can, and to some extent it has already done so. However, in this thesis I will argue that even though the social, economic and political climate in Mexico has reached a point of crisis, it is possible for civil society to draw on a human security approach to create a more consolidated and substantive democracy. The failures of Latin Americas war on drugs have made it clear that relying solely on militaristic strategies does little to alleviate this crisis. Instead, increased community-based social participation will be more effective to protect and nurture Mexican democracy from within. My case study will focus on Ciudad Juarez, a city fraught with drug-related violence and one that has attempted to overcome it through organized civil participation.

Shyam Kattel, Plamen Atanassov, Boris Kiefer; Physics, New Mexico State University

Stability of Defects in Graphene: A First-Principles Study

Carbon based technologies are widely used in scientific and engineering applications. The first synthesis of graphene in 2004, a two dimensional graphite sheet, will most likely increase the range of carbon based applications in nanoelectronics, spintronics and sensors. Furthermore, the stability of graphene suggests that it may be a good model system for existing technologies such as self-assembled non-Pt catalysts for energy conversion applications. The versatility of graphene derives from its semi-metallic electronic state which can be tailored by introducing suitable defects and dopants. We have used density-functional-theory (DFT), a parameter-free approach, to study the stability and electronic properties of defects and dopants in graphene. The results show that defects are only kinetically stabilized in the absence of a transition metal (TM) such as iron or cobalt. In contrast, the defects are significantly stabilized by the presence of a TM and in many cases the defects are predicted to become thermodynamically stable, leading to longer lifetimes and durability of the defects. Several previous studies have attributed catalytic performance increase to favorable C-N interactions. However, this claim relies on the complete removal of the TM that was used for catalyst synthesis. Our results support a different view: the binding of the TM to the defect prohibited its complete removal and led to the performance increase. This prediction corroborated by experimental observations suggests that the challenge of formulating a metal-free catalyst is an issue that has not been mastered at present and remains a challenge for future research.

Anna Klimaszewski-Patterson; Geography, New Mexico State University

Geographic Fieldwork: Comparing GPS Capabilities Between Smartphones and Dedicated GPS

Since Apple iPhone's 2007 debut, the availability of GPS-enabled smartphones has grown. The effectiveness of GPS-enabled smartphones for basic geographic fieldwork has been unexplored. This article compares a GPS-enabled smartphone, the HTC G1 Dream (G1), against a dedicated GPS device, the Trimble Juno ST (Juno), with respect to ease-of-use and accuracy of GPS readings. Ease-of-use tests involved (1) locating polylines/boundaries, (2) recording polylines/tracks, (3) recording points/waypoints, and (4) navigating to specific geographic coordinates. GPS accuracy tests were done at previously recorded survey markers. In ease-of-use tests, G1 applications proved much simpler for test subjects to operate and extract data from than Juno applications. Regarding GPS accuracy, G1 exhibited lower residual error, and thus more truthfulness, in its reported accuracy. Both devices had an actual accuracy range between 1-6 meters. G1 demonstrated that a GPS-enabled smartphone can be a viable alternative for geographic fieldwork where enterprise-level software is not needed.

Melissa Kreindel; English, Texas Tech

"The CIA"

As a fiction writer at Texas Tech University, I like to explore how characters deal with their emotions, often in an unexpected way. "When my father died, I joined the CIA – the Chihuahuas in Action group. It wasn't my idea. My friend Kim suggested I go. It was her way of saying she was worried about me. I didn't even own a Chihuahua. Kim let me borrow her Stella." In my short story, "The CIA," Eliza copes with the grief of losing her father by joining a quirky group of people and their Chihuahuas. After her father's death, Eliza feels all alone and pulls away from the people in her life, especially her neighbor Nick, and attaches herself to Stella, the Chihuahua, and the CIA. Throughout the course of the story, Eliza learns how to grieve, how to let people in, and, ultimately, how to let go. The piece is about 4200 words.

John David Kulpa; Psychology, New Mexico State University
*Testing the Generalizability of the Regulatory Fit Hypothesis as a Framework for
Understanding the Effect of Pressure on Performance*

Pressure has been defined as the condition that prevails when any factor or combination of factors increases the importance of performing well on a particular occasion (Baumeister, 1984). Anecdotal examples can of course be found for both impaired performance (choking) and inspired performance (excelling) under such a condition. Though most empirical studies in psychology that address changes in performance under pressure have focused on choking, excelling under pressure has likewise been documented. A comprehensive theory of performance under pressure ought to address both types of change for a wide range of tasks. A theoretical framework recently proposed by Worthy, Markman, and Maddox (2009) adapts regulatory focus theory (Higgins, 1997) to the analysis of performance under pressure. This approach has the potential to integrate within a single theory both of these outcomes of pressure performance (choking and excelling). Additionally, these researchers have shown the appropriateness of the framework for classification learning tasks, and have published archival work suggesting its potential generalization to motor control tasks. In the present study, I test for this generalization directly using a mirror-drawing task. Participants are either trained or not trained on the task. At test, by means of manipulations of reward structure and pressure level, they are placed in a regulatory fit or mismatch. This condition is predicted by regulatory focus theory to interact with training level to affect performance.

Carrie La Tour; Government, New Mexico State University
Cultural Diplomacy: New Mexicos Collaboration Between Tribal and State Governments

Current literature on cultural competency for public administrators does not examine Tribal / State relations. In an effort to rectify this, our research examined a collaboration among the New Mexico Indian Affairs Department (IAD), Tribal Leaders, the Indian Law Program, and the New Mexico State Personnel Office (SPO) to develop and implement for State of New Mexico employees a training program in cultural competency. The goal of the mandatory state training is to establish, amongst state personnel, culturally competent dialogue and communication skills for interacting with New Mexicos Tribes and Pueblos, in an effort to ensure quality delivery of services for the New Mexico Native American population. The descriptive study employed various sources and methods of data collection. Specifically data was drawn from: (1) personal interviews with key state employees, (2) participant observation of a Pilot Training (3) content analysis of state legislation and official reports, and (4) news stories and journal articles covering state-tribal relations as well as cultural competency training for public administrators serving Native American clients.

Ana LuzVivas; Mathematics, New Mexico State University
Final Size Relation for the SAIQR Influenza Model

In Epidemiology models, the final size relation is a fundamental equation relating the final size of the epidemic to the basic reproduction number. The final size relation is an important tool for analyzing the behavior of an epidemic model. Kermack and McKendrick derived this equation for a general age-of-infection model, without writing the equation directly related with the basic reproduction number. Recent work shows the final size relation for a general age-of infection epidemic model, depending on the basic reproduction number, in a new simpler form if the total population size remains constant. We found an inequality as the final size relation for the S (susceptible), A (asymptomatic), I (infectious), Q (quarantine) and R (recovered) influenza model and we use simulations to approximate the Final Epidemic Size.

Liang Ma; Communication Studies, New Mexico State University
*The Intentions for Emergency Preparedness in the United States:
An Application of the Theory of Planned Behavior*

Due to the looming threat of terrorist attacks, natural disasters, and other emergencies faced by the United States, emergency communication organizations, such as government agencies and non-profit organizations, have been trying to communicate the importance of emergency preparedness to the public and to educate them on how to prepare for catastrophic disasters. However, the preparedness of the American public is still, at best, unsatisfactory. This study examines intention, the immediate predictor of actual behaviors, to prepare for emergencies in the United States from the perspective of the theory of planned behavior. Approximate five hundred randomly selected participants from a Southwestern land-grant institution will participate in the survey concerning their attitudes, subjective norms,

and perceived behavioral control toward two emergency preparedness behaviors. The take-home message for the emergency communication organizations is that in order to achieve the optimal effects, their future social information campaign should target the factors underlying the low preparedness of the public revealed in this study.

Eloy Marquez; Mechanical & Aerospace Engineering, New Mexico State University

Effect of Gust on Flow Patterns Around a Robotic Hummingbird Wing

Numerous studies have demonstrated the importance of the leading edge vortex (LEV) in enhancing lift production during hovering flight for a hummingbird. Almost all of these experiments have been performed under laminar inflow conditions without the presence of transient flow phenomena (e.g. gust). And yet, real-life ornithopters in the field have to routinely tackle gust and directional changes in the wind. In this talk, preliminary results from an investigation of the flow field modulation around a hummingbird wing under well-controlled gusty conditions are presented. Using a 2-degree of freedom robotic hummingbird model wing mounted on a translation stage, conditions replicating a gust impacting a wing are created at the NMSU water channel facility. Phase-locked PIV (Particle Image Velocimetry) velocity measurements were obtained around the wing in the presence of gusts varying from 5-30% of the mean tangential wing velocity. These measurements, in combination with force and moment measurements from a six-axis load cell, are used to understand transient flow phenomena induced by the gust, and their effect on the net thrust and lift forces on the robot's wings over a range of Reynolds number ($1400 < Re < 20000$).

Robert Matheson; Music, University of Arizona

MIDI Double Bass: New Performance Possibilities

As a doctoral candidate in double bass performance, minoring in electro-acoustic music, I have designed and built a system that allows me to interface the double bass with computers through Musical Instrument Digital Interface (MIDI) protocol. The MIDI double bass allows my interests in live performance and electro-acoustic music to combine, resulting in a unique and fulfilling concert experience. Since completing the MIDI double bass, I have composed and performed two solo works for the instrument. The composition "Curiouser and Curiouser" is based on sounds sampled from recorded forms of *Alice's Adventures in Wonderland*. This piece addresses topics that have stood out to me while reading, listening to, and watching Carrolls story with my children. I edited these sounds using software including: Digital Performer, Peak, and Metasynth, with additional live manipulation through Reason. The piece "in Just-" begins by triggering the recording of e. e. cummings' poem of the same name. At the conclusion of the reading, I improvise with various sampled words and sounds from the reading that I have mapped out on the bass, giving emphasis to key words and phrases. Through the MIDI double bass, I manipulate the sounds in real-time with various effects including transposition, delay, stereo panning, distortion and equalization. I propose to perform these original compositions on the MIDI double bass and present information on how the instrument interfaces with the computer and the possibilities that it presents for live performance.

Dennis C. McCarville; Geography, New Mexico State University

Atmospheric Correction of Landsat Thermal Infrared Data: A Calculator Based on North American Regional Reanalysis (NARR) Data

In order to utilize Landsat thermal infrared satellite imagery, atmospheric effects must be accounted for. Atmospheric correction applications available for this purpose either do not allow the user to specify atmospheric profiles for the desired time and location of the Landsat overpass and/or do not utilize atmospheric data that cover the entire Landsat operational period. To address these problems, we have developed an atmospheric correction application for the thermal infrared bands of Landsat 5 TM and Landsat 7 ETM+ that is applicable to North America and based on the MODerate spectral resolution atmospheric TRANsmittance algorithm and computer model (MODTRAN). Specifically, we have designed Interactive Data Language (IDL) programs to extract the desired atmospheric data from the North American Regional Reanalysis (NARR) data based on user inputs of latitude, longitude, elevation, and Landsat overpass time. The application reformats the atmospheric data and adds it to tape 5 inputs used in execution of MODTRAN. The application uses the MODTRAN tape 7 outputs to calculate atmospheric transmission, upwelling radiation and downwelling radiation parameters.

Laura Mendoza, Monica Martinez; Languages & Linguistics, University of Texas - El Paso

How do Miners "Pick" Their Pronouns? Pronoun Usage in Academic Writing Among Second Language Learners

Learning to write academically is a challenge that most college students face. Second language learners not only deal with this challenge, but they also need to develop the necessary language skills required for college level writing. Choosing what to say, or in this case what to write, is not always an easy task for second language learners. One of the many decisions these students have to make relates to pronominal choice, that is, which pronouns are most appropriate in the context of college level academic. ESOL teachers and materials provide students with some guidance to write appropriate academic English; however, students tend to use pronouns in varying ways depending on their level of proficiency and the task at hand. Pronouns are an example of how students develop linguistic skills related to academic writing in English. This presentation reports the results of a variety of subject pronouns and their usage among second language learners based on data extracted from the UTEP Learner Corpus of Academic Writing. This corpus includes essays written by undergraduate students enrolled at UTEP. In this program students are required to write a set of essays according to their level of proficiency. The data comes from writing intensive courses in the corpus reflecting various lexical patterns and research tasks. Analyses include comparing differences among levels of proficiency as well as among different types of essays.

Miranda Metcalf; Art History, University of Arizona

The Deer Soul of Frans Snyders: How Seventeenth-Century Dutch Market Scenes Reflect French Philosophical Discourse on Animals

Within humanist and philosophical circles of seventeenth-century France, a debate raged about the nature of animals, specifically over whether or not they could feel pain or possessed souls equivalent to our own. The answers to these questions had strong implications for the science of natural philosophy and the divinity of humankind. During this same period, 200 miles north of Paris in Antwerp, Frans Snyders was making a name for himself as the most skilled of animal painters. His specialty was large-scale market or larder scenes that would most commonly consist of a variety of freshly killed game animals, creatures from the sea, and ripe fruit. Snyders would often juxtapose the dead animals in his paintings with live ones, such as a squirrel, weasel, monkey, or dog. As the philosophical discourse between theriophiles (pro-animal thinkers led by Michel de Montaigne) and Cartesians (anti-animal thinkers inspired by the writings of Rene Descartes) entered mainstream culture, the market for Snyders paintings increased. Through a close examination of Snyders work and life, one may gain some insight in to his personal feelings on the subject and how they are reflected in his work. Drawing on the writings of Montaigne and Descartes, as well as relevant biographical information on Snyders, this paper will examine the role of Snyders paintings in this philosophical discussion and how they pertain to the larger discourse on animals in the seventeenth century.

Beverly A. Miller; Education, University of New Mexico

Caribbean Panamanian Women...Blazing Trails in STEM Careers

People of color have often been grouped as one people and racialized as African American by the Western world and specifically within the United States. For the Panamanian immigrant this problem is heightened in that they may be of African phenotype, speaking fluent Spanish and identifying with Caribbean and Hispanic culture. This ethnographic case study seeks to give voice to female Panamanian women of Caribbean descent who choose STEM (Science, Technology, Engineering and Mathematics) careers. The theoretical framework to be used will be Banduras (1977) theory of self-efficacy. This portion of the overall study attempts to understand the lives of women of Caribbean descent whose parents came to Panama to help build the Canal and are employed in STEM careers in Panama. Therefore, transnationalism will be a factor in understanding the migratory impulses of families from the Caribbean islands. Women of color are under-represented in the sciences. By learning their stories we can better support future women of color in STEM.

Chaitanya Mohan; Electrical and Computer Engineering, New Mexico State University

Three Stage Class-AB Audio Amplifier to Drive 16-Ω Headphone Speakers with Improved Efficiency

We have designed a three-stage class-AB audio amplifier for driving 16-ohm headphone speakers. The audio amplifier finds application in laptops, iPods and cell phones that require high quality audio. The design has high output power, extremely low stand-by power and very low total harmonic distortion (THD). The signal at the input is amplified by three stages. The first-stage is a fully-differential amplifier. The second-stage is also fully-differential. Its output is connected to the input of the third-stage, a common source amplifier. Local common-mode feedback and replica

bias circuits are used in the internal stages to reduce harmonic distortion and to bias the output stage. Stability in this amplifier is achieved using a complex network of compensation capacitors and resistors. The audio amplifier has an output voltage swing of 2.5Vpp for 3V of supply voltage. The total harmonic distortion is 0.014%. The quiescent power of the design is 1.47mW and the total output power is 97.6mW. The figure of merit (FOM) is defined as the ratio of total output power delivered to the load to the quiescent power, which in this case is 66.25.

Austen Moore; Agricultural and Extensions Education, New Mexico State University

An Analysis of the Agricultural Sustainability of Small-Scale Farms in Lacluta Sub-District of Timor Leste: A Comparison of Internal and External Perspectives

The sustainability of Timor Lestes traditional agriculture and its ability to meet the needs of the population is being reassessed. Government agricultural policy is being rewritten and development agencies are beginning to incorporate agricultural sustainability into their programs. However, these efforts are often stymied by insufficient information on Timorese agriculture, particularly data generated with local input. This study analyzes the agricultural sustainability of the small-scale household farms in Lacluta sub-district of Timor Leste. Current agricultural practices were identified and assessed for sustainability, and farmers perspectives on sustainability were established. The results identify specific priorities for development efforts. Agricultural sustainability was conceptualized as having four domains: Agronomic/Production, Economic, Environmental, and Social/Basic Human Needs. Subsistence farmers in Lacluta (n=50) were interviewed to produce both quantitative and qualitative data. Agricultural sustainability of Lacluta was found to be moderate, with a score of 0.42 on a scale of 0 to 1. Subjects averaged 0.64 on the Social/Basic Human Needs index, 0.42 on the Agronomic/Production index, 0.40 on the Economic index, and a much lower 0.20 on the Environmental index. Farmers identified insect pests, rats and mice, and lack of soil fertility as the top three production problems faced, and identified tractors, improved seeds, and general capacity building as their three largest production needs. Subjects continue to practice shifting agriculture at high levels (78%), while only 46% used some form of planned soil improvement. Dimensions and sub-dimensions scoring low should be priority areas, and particular emphasis should be placed on incorporating environmental sustainability into agricultural development.

Ashwin Naidu; School of Natural Resources and the Environment, University of Arizona

Wildlife Forensic Genetics: A Synthesis For DNA Detectives To Fight Wildlife Crime

An ever-increasing demand for wildlife parts in international wildlife trade, now a multi-billion dollar business, necessitates stringent enforcement of wildlife protection laws. Additionally, the need to curb worldwide illegal wildlife trafficking calls for the use of best available scientific resources to provide reliable evidence on wildlife crime cases. Wildlife forensic genetics, one of the available resources, is becoming increasingly popular for providing evidence during wildlife crime investigations, primarily because of its strong scientific basis. In the last two decades, genetic techniques have been invaluable in determining a myriad of aspects in wildlife biology, including - but not limited to - the identification and classification of species, populations, individuals, sex, mating systems, parentage, relatedness, kinship, population size, population structure, migration, diet and disease. This information, in the scope of wildlife forensics, has been used as unfailing evidence for the prosecution or defense of wildlife crime cases, and has significantly aided the enforcement of national and international wildlife protection laws. I will present important genetic techniques in wildlife forensics and give reason for their efficacy, utility, and reliability. I will also explain genetic techniques that are currently popular among the scientific community and are peer-reviewed for use in wildlife management applications. With this project, I hope to generate peoples interest in novel scientific applications for wildlife conservation in general, and the use of forensic genetic practices in fighting wildlife crime in particular.

Mazen Nairat; Physics, New Mexico State University

Scanning Ladar: Spatial Imaging Performance Through Turbulence

The performance of scanning laser radar is studied for generating two-dimension spatial images at long ranges. Performance is described in terms of the Modulus Transfer Function (MTF). A simple analytic expression for the MTF associated with wave front tilt caused by propagation through atmospheric turbulence is explicitly derived. The derivation includes consideration of the influence of the Fresnel length. A physical optics simulation is employed to demonstrate the applicability of the MTF approach. The results are compatible with theoretical expressions that describe the image.

Romina Pacheco; Curriculum and Instruction, New Mexico State University

Bad Hair, Getting to the Root: A Discourse Analysis

About seventy percent of adult women of African descent in the United States choose to have their hair relaxed in the attempt to get rid of their "bad hair" and attain "good hair." "Good hair" among people of African descent is broadly defined as hair that is straight, silky, and flowing, and is synonym with beauty, acceptance, status, professionalism, and success. In 2008 alone, it was estimated that 9 million Black women in the United States used hair relaxers (Market Research Report, 2008) while the options Black women have to keep the appearance of having long, straight, shiny hair has increased to include "weaves, wigs, extensions, pieces, puffs, and pin-on ponytales" (Harris and Johnson, 2001, p.71). When looking at it from the outside this could be interpreted as an unreasonable obsession with looking certain way. However, when doing an in-depth analysis of the socio-political roots of this issue, what one finds is a long history of colonialism and oppression in the forms of racism, sexism, and classism sustained by a sophisticated system of discipline and punishment (Foucault, 1995; Frye, 1995) that goes back hundreds of years to pre-colonial Africa and the enslavement of African people (Drewal, 2001). In this presentation I will address the reasons behind the oppression many Black women have internalized as a result of a White supremacist ideology that refer to straight hair as "good" and nappy hair as "bad" (hooks, 1988; Harris & Johnson, 2001; Thompson, 2009). I will argue that such ideology operates in ways that control Black women's bodies to keep them in a subordinate position (Walker, 2001) while feeding the capitalist machine (Jones, 2001).

Prakash Paudyal; Chemistry and Biochemistry, New Mexico State University

Investigating the Role of Grb7 Protein in PI3 Kinase Signaling Pathway and Breast Cancer Development

Grb7 (Growth factor receptor bound protein-7) protein is the intracellular signaling molecule involved in integrin signaling pathway leading to the cell migration . It is a multidomain adaptor with function of linking cellular receptors and other intracellular proteins leading to different downstream functions. Various studies have shown the Grb7SH2-domain as a predominant binding domain that interacts with a number of proteins. Grb7 also contains a PH domain that can bind with specific phosphoinositides and other signaling molecules in the phosphatidyl inositol kinase 3 (PI3K) signaling pathway, thus regulating the cell migration. Grb7 has been found to be highly expressed in esophageal and breast cancers and have been correlated to metastasis. The purpose of this study is to identify potential Grb7 interacting proteins in the PI3 kinase pathway which can help to elucidate the role of Grb7 in signal transduction and cancer development. We have identified Filamin 1 as an interactor to Grb 7 through yeast two hybrid studies. Verification of interaction in breast cancer cell lines and functional study will help define their role in cell migration and breast cancer development

Geoff Pershing; Government, New Mexico State University

Balancing Borders: A New Court Considers Immigration

With the rise of city and state governments tackling the issue of immigration through regulation and legislation we have seen an increase in these cases in our court systems. Immigration and naturalization have traditionally been considered to be under the purview of the federal government and we have seen several challenges to these laws already make it onto the dockets in our federal courts. This paper will examine the judicial decisions of Supreme Court Justice Kennedy over a ten year period in an attempt to analyze and predict where the Justice will likely lead the Court as the acknowledged swing vote on the bench.

Joe Peterson; physics, New Mexico State University

X-ray and Neutron Pair Distribution Function Study of Pyrolyzed CoTMPP

Pair Distribution Function(PDF) analysis of the non-Pt catalyst pyrolyzed CoTMPP was conducted via x-ray and neutron scattering. The experiments, together with collaborative Density Function Theory(DFT) calculations, strongly suggest the presents of a number of Co-X bonds. These results help confirm those of past experiments. In addition, the PDF shows graphene like correlations extending over several bond lengths (roughly 10 Angstroms), indicating some degree of crystallinity in the sample.

Long Pham; Management, New Mexico State University

What Is Negotiauction?

It seems only Subramanian (2010) has looked at dynamics of the real world negotiations and auctions and found limitations in negotiation and auction theories. In the same vein, thus far only Teich et al. (2001) have comprehensively discussed relevant design issues that are concerned with how to construct a negotiauction. By combining these two perspectives: the real world perspective and the theoretical perspective of Subramanian (2010) and Teich et al. (2001), respectively, a number of propositions are proposed with respect to when to negotiate, when to auction, and when to negotiauction. Future research directions are opened up with the purpose of empirically investigating negotiauctions.

Shiva Prasad Pokharel; Electrical and Computer Engineering, New Mexico State University

An Effect of a Load Model on Transient Stability of a Multimachine Power System

A power system is a very complex nonlinear system spread over a wide geographical area. A power system comprises large number of generators and loads which are interconnected together through transmission and distribution line. The purpose of this study is to visualize how a transient stability phenomenon changes with a change in load model. Two different cases, one with constant impedance loads and the other with constant power loads, are simulated in WSCC 9 bus system in order to demonstrate the importance of load modeling for transient stability. Results of the simulations show that there would be a significant difference between the two cases with different load models.

Venkat Reddy Rajannagari; Electrical and Computer Engineering, New Mexico State University

A High-Speed CMOS Parallel Sub-Aperture Centroid Computation Sensor

In this paper, we present a high-speed parallel sub-aperture centroid computation sensor for use in Shack-Hartmann wavefront sensing. A Shack-Hartmann sensor is comprised of a sub-aperture centroid computation sensor and a lenslet array. The main aim of this sensor is to compute the spatial phase distribution of an incident wavefront. Traditional Shack-Hartmann wavefront sensors employ an image sensor, an analog-to-digital converter and a micro-controller. The entire image is scanned and converted to a digital signal before the micro-controller computes the sub-aperture image centroids. Our sensor skips most of these steps by computing NxN sub-aperture image centroids in parallel directly on the image sensor chip. An image centroid, or center of mass, circuit has wide applications in adaptive optics, such as image tracking, image sharpening, laser alignment, beam focusing, and directed energy systems. The centroid computation sensor is designed to match a specific lenslet array where each lenslet has a diameter 198 μ m and a focal length 7.7 mm. The fabricated chip is a 7x7 array of centroid computation circuits on a 1.5mm x 1.5mm die. When an optical wavefront is incident on a 2-D array of optical lenslets, the wavefront gets spatially sampled by these lenslets and the outputs of these lenslets are focused onto the centroid array. The centroid array converts the optical information into electrical currents, which are used as inputs to image centroid computation circuits. Finally, image centroids are computed in parallel and output as voltages that represents the (x, y) coordinate.

Amit U. Raysoni; Environmental Sciences & Engineering, University of Texas - El Paso

Traffic Air Pollution Characterization at Four Elementary Schools in the Paso del Norte Region

In the last two decades, El Paso and Ciudad Juarez have experienced a tremendous growth in binational commerce resulting in rapid population growth, increasing number of motor vehicles, and subsequently heavy traffic air pollution. Various studies have shown adverse outcomes between traffic-pollution indicators like PM_{2.5} (Particles smaller than 2.5 micrometer in diameter), nitrogen dioxide, and black carbon and adverse respiratory outcomes in children. Traffic pollutants are spatially and temporally heterogeneous at the community level; therefore, traditional central ambient monitoring sites like TCEQ CAMS (Texas Commission on Environment Quality's Continuous Ambient Monitoring Stations) sites may not mirror the changes in local or indoor pollutant concentrations. As part of a binational health effects study investigating the impact of traffic air pollution on asthmatic children, indoor and outdoor concentrations of fine and coarse PM, black carbon, and nitrogen dioxide were concurrently monitored for sixteen weeks from January to May 2008 in four elementary schools. Two schools (one in each city) were located in a high traffic density zone and the other two in a low traffic density zone. Indoor and outdoor concentrations in Ciudad Juarez were generally more than two times higher than those in El Paso. Within El Paso, outdoor concentrations in the high traffic zone were up to two times higher than in the low traffic zone. This research characterizes the intra-urban variability in

the concentration gradients of various air pollutant mixtures across the four schools with potential implications for epidemiological studies basing their exposure variables from central monitoring sites.

Daniel Richmond; Art & Art History, University of New Mexico
Endangered Words & Worlds

One of the worlds 7,000 recorded languages becomes extinct every two weeks, according to the New York Times. The BriBri live in the dense rainforest that straddles the Costa Rican and Panamanian border of Central America. Linguistic experts now consider the BriBri language one of the worlds endangered native languages. I traveled to Costa Rica in June of 2010 to work with BriBri artists including Carlos Jackson and Saydie Sanchez, to address this pending cultural destruction. Over a one-month period we hand-carved BriBri names of various rainforest animals and plants along with English names of some of New Mexicos endangered species onto local materials that included river rocks, tree gourds and wood. Upon completion, Carlos Jackson piled over forty inscribed rocks on an island in the middle of a river. Local children then followed his lead and carefully returned the colored rocks into the water while reading the vanishing names aloud. Costa Rica and the entire Southwest share a devastating loss of species and indigenous languages. Survival of unique cultures and diverse environments in both regions will be determined in great part by todays children. Our project took art out of the realm of the commercial gallery to employ objects as dynamic, interactive teaching tools that engaged the ongoing loss of a native language in a visceral and impactful fashion. The strength of the visual arts is its potential to communicate across cultures and to physically educate as well as theoretically illuminate often hidden processes, connections and costs.

Erin Rivera; Biology, New Mexico State University
Imaging Heterostructured Quantum Dots in Cultured Cells with Epifluorescence and Transmission Electron Microscopy

Quantum dots (QDs) are semiconductor nanocrystals with extensive imaging and diagnostic capabilities, including the potential for single molecule tracking. Commercially available QDs offer distinct advantages over organic fluorophores, such as increased photostability and tunable emission spectra, but their cadmium selenide (CdSe) core raises toxicity concerns. For this reason, replacements for CdSe-based QDs have been sought that can offer equivalent optical properties. The spectral range, brightness and stability of InP QDs may comprise such a solution. To this end, LANL/CINT personnel fabricated moderately thick-shell novel InP QDs that retain brightness and emission over time in an aqueous environment. We are interested in evaluating how the composition and surface properties of these novel QDs affect their entry and sequestration within the cell. Here we use epifluorescence and transmission electron microscopy (TEM) to evaluate the structural properties of cultured *Xenopus* kidney cells (A6; ATCC) that were exposed either to commercially available CdSe QDs (Qtracker 565, Invitrogen) or to heterostructured InP QDs (LANL). Epifluorescence imaging permitted assessment of the general morphology of cells labeled with fluorescent molecular probes (Alexa Fluor phalloidin; Hoechst 33342), and the prevalence of QD association with cells. In contrast, TEM offered unique advantages for viewing electron dense QDs at higher resolution with regard to subcellular sequestration and compartmentalization. Preliminary results show that in the absence of targeting moieties InP QDs can passively enter cells and sequester nonspecifically in cytosolic regions whereas, commercially available targeted QDs principally associate with membranous structures within the cell. Supported by: NIH 5R01GM084702.

Manuel Ivan Rodriguez; Industrial Engineering, New Mexico State University
Proportional Hazards Model with Latent Variable on Multi-Stress Accelerated Life Testing

Nowadays, modern and reliable products capable of having a long life, have caused a need for models capable of predicting the life of the product using accelerated life Testing. In particular, the tests need to be done using multiple stresses in order to cause failure modes which are unknown or little-explored yet. This paper presents a Multi-stress reliability model using a Bayesian approach. We investigate Bayesian analysis for Coxs proportional hazard model with the use of a latent variable with Gaussian process on the study of Accelerated Life Testing (ALT). The use of the latent variable is done in order to add a random error for unknown sources of variation on the study which are not included in the test. We make statistical inference under Bayesian methods by using Markov chain Monte Carlo(MCMC) techniques to estimate the parameters involved in the model and predict reliability of the accelerated life test. The Gaussian process is used to give a distribution over possible relationship between the accelerating variable and the response. Finally, estimation of reliability is presented using the estimated reliability function.

Christy Roye; History, New Mexico State University
"Unleashing Leetso: A Labor History of Navajo Uranium"

At a time of heightened militaristic nationalism from the 1930s through WWII, largely unskilled and illiterate Navajo men were pressed into searching for and mining uranium on or near the Navajo Nation. An ill-prepared Navajo Tribal Council was tasked with negotiating agreements and leases with a relatively new extractive industry which had secured contracts with the Department of Defense to supply uranium for secretive weapons programs. The U.S. Government deemed uranium workers expendable in its refusal to insist that the uranium industry provide a safe workplace and provide compensation for labor-related health issues discovered long after the Government's need for uranium was exhausted. Government neglect of its guardian responsibilities towards Din, spelled out in long-established treaties, enabled industry to disregard the health of miners who supplied a natural resource in this country's defense, decimate the environment in and around the Navajo Nation, and delay cleanup and compensation for decades. A history of marginalization and institutionalized racism contributed to these delays. Most insidious in the story of unleashing Leetso (uranium) is that miners were deliberately kept ignorant of potential health dangers in an effort to keep the workforce intact and to study results of radiation testing. The special guardian relationship with Indians comes with special obligations, a fact the U.S. Government has rarely lived up to. Exposure of these dark chapters in U.S. history comes with historical research and sometimes provocative narratives. The purpose is to insure these deeds are never repeated and that those who suffered are never forgotten.

Talal Saint-Lot; Public Administration, University of New Mexico
Shaping a Nation from the Outside In: An Assessment NGO-Government Relations in Haiti

The island nation of Haiti suffered one of the world's most catastrophic disasters on January 12, 2010; triggering an impressive international humanitarian response resulting in record-breaking fundraising campaigns around the globe. It has always been the fact, but it has never been truer, that when looking at development in Haiti, the international community has played the leading role. Monolithic transnational organizations such as the United Nations (UN), Department of State Agency for International Development (USAID), and the Pan-American Development Fund (PADF) are the primary recipients of the projected \$10 billion injection by the international community for the reconstruction of Haiti. The future of the young population of Haiti hinges on decisions made in organizational headquarters far away from ground-zero at Port-au-Prince, Haiti and by executive board members that may have never even visited the flattened city. This paper explores NGO activity in response to the January 12 earthquake in Haiti by focusing specifically on transnational organizations that have spent over \$10 million in Haiti since the event and documenting their organizational characteristics by identifying individual program areas, mission focus, inputs & outputs, performance measures, and spending priorities in their Haiti operations. The findings reveal that many transnational organizations working in Haiti have implemented rather indifferent and in some cases counter-intuitive approaches to providing humanitarian and development assistance; although non-governmental organizations focusing on medical relief haven proven that with a more invested approach, successful results will follow. Concluding recommendations include strengthening the Haitian government's capacity to coordinate and lead the reconstruction effort by solidifying NGO governmental relations and creating a platform for the formation of public-private partnerships.

Rajesh Satyavada; Electrical and Computer Engineering, New Mexico State University
A CMOS Mixed-Signal Phase and Magnitude Detector

In this paper we describe a CMOS mixed-signal (analog and digital) system that accurately measures the phase and magnitude of a sinusoidal signal. Phase and magnitude are measured by correlating a test signal with a reference signal. The detector consists of a transmitter and receiver on two separate chips. One application of this detector is for a malaria sensor, in which the output phase and magnitude convey information about the presence of a malaria virus in a test environment. The transmitter is designed using a transconductance amplifier, which drives a LASER diode. The ensuing LASER beam is split into two paths, the reference path and the test path. The test path includes a chemical sensor. The sensor, in the presence of a chemical, reacts differently and hence modulates the phase and magnitude of the optical signal passing through it. Once at the receiver, photo-diodes convert both test and reference optical signals into electrical current, which is converted to voltage using a transimpedance amplifier. The receiver consists of three: amplification, multiplication and low-pass filtering. The amplification stage is a programmable high-gain amplifier. The second stage is a digital multiplier, comprised of analog buffers and digital multiplexers. The final stage is a second-order low-pass filter with a cut-off frequency of 1 Hz. The final outputs received from the filters are fed to a host computer where phase and magnitude values can be computed using simple arithmetic and trigonometric functions.

Milos Savic; Mathematics, New Mexico State University

Where is the Logic in Proofs?

Often university mathematics departments teach some formal logic early in a transition-to-proof course in preparation for teaching undergraduate students to construct proofs. Logic, in some form, does seem to play a crucial role in constructing proofs. Yet, this study of 43 student-constructed proofs of theorems about sets, functions, real analysis, abstract algebra, and topology, found that only 1.7% of proof lines involved logic beyond common sense reasoning. Where is the logic? How much of it is just common sense? Does proving involve forms of deductive reasoning that are logic-like, but are not immediately derivable from predicate or propositional calculus? Also, can the needed logic be taught in context while teaching proof-construction instead of first teaching it in an abstract, disembodied way? Through a theoretical framework emerging from a line-by-line analysis of proofs and task-based interviews with students, I try to shed light on these questions.

Marcelo Schmidt; Educational Psychology, Texas Tech

Experimental Test of Elliot's 2X2 Achievement Goal Under Competitive Sport Conditions

The achievement goal framework has greatly impacted the sport psychology literature. Elliot's (1999) achievement goal framework that incorporates the classic goal definitions (i.e., mastery and performance) with a valence dimension (i.e., approach and avoidance) is the contemporary framework. Relatively few experiments have been conducted with Elliot's framework. A review of these few studies suggests that competition, a main factor in the achievement context, has been missing. To further achievement goal research, an experiment was conducted to test the impact of Elliot's (1999) achievement goals on performance of a basketball shooting task under competitive conditions (e.g., a prize reward). Undergraduate students ($N = 57$) across four basketball classes were the participants. Participants completed the AAHPERD basketball shooting test at three time points (baseline, competition 1 and competition 2). In both of the competition conditions, classes were randomly blocked to receive one of the four achievement goal conditions (mastery approach or avoidance and performance approach or avoidance). A Time (competition 1 and 2) by Condition (four achievement goals) MANCOVA was conducted. The baseline score was the covariate. The Time by Condition interaction was significant, $F(1, 52) = 4.25, p < .01$. Analysis of this interaction revealed all groups were equivalent after competition time 1. But the mastery approach group improved at competition time 2 more than the other experimental groups by large effect size difference values (range .51 to 1.00). In summary, the present experiment demonstrated that the efficacy of a mastery approach condition as a method for improving basketball shooting performance.

Matteo Serena; Plant and Environmental Science, New Mexico State University

Nitrogen Source and Rate Affect Color Retention on Warm Season Grasses Under Saline and Drip Irrigation

Nitrogen fertilization helps to enhance turf quality during the growing season and can shorten the dormancy period of warm season grasses. A study was conducted at New Mexico State University to investigate the effect of nitrogen fertilization on fall color retention and spring green-up in established seashore paspalum (*Paspalum vaginatum*) Sea Spray and bermudagrass (*Cynodon dactylon*) Princess 77 turf. Two nitrogen rates, 10 and 20 g m⁻²year⁻¹ on Sea Spray and 20 and 30 g m⁻²year⁻¹ on Princess 77 from 5 different fertilizer sources [urea liquid, urea granular, Burley green, CoRoN, and a granular slow release (20-4-8)] were applied. Plots were irrigated with either potable (370 ppm) or saline (1600 ppm) water from sprinkler or subsurface drip irrigation systems. Digital images, Normalized Difference Vegetation Index (NDVI), and visual quality ratings were taken bi-weekly. At the end of the growing season, stolons and rhizomes were collected to determine carbohydrate and starch contents. Urea granular and slow release urea provided the greatest color retention for both grasses in mid November. Sugar analysis of stolons and rhizomes revealed that rhizomes accumulated more starch, glucose and sucrose than stolons. Fertilizer type and amount affected starch and carbohydrate content in rhizomes differently than in stolons. Moreover, drip irrigated plots showed less sucrose accumulation than sprinkler irrigated plots. Sucrose content in rhizomes of bermudagrass fertilized at 30 g m⁻² was significantly correlated to fall color ($r = 0.64$). These results suggest that nitrogen management is important to ensure good fall color retention in the transition zone.

Charlene Shroulote; Government, New Mexico State University

States Enforcing Federal Policy: Examining Arizona's SB 1070

In April 2010, Arizona Governor Jan Brewer signed the Support Our Law Enforcement and Safe Neighborhoods Act, also known as SB 1070. A firestorm immediately erupted and the measure received national and international

attention, spurring considerable debate and discussion on the legal and moral implications of this legislative act that has been deemed one of the broadest and strictest anti-illegal immigration policies in decades. Newspapers, legal documents, legislative documents, and journal articles will be used to explore the controversial policy from its early beginnings to its implementation. The Stages of the Policy Process Framework (Dye, 2010) will be applied to analyze how this federal policy came to fruition by the state of Arizona. Included in the discussion is the complex issue of states enacting and enforcing federally mandated immigration policy.

Julia Smith; English, New Mexico State University
Masochism in Blood and Guts in High School

Classical and contemporary traditions of psychoanalysis have inherited the impulse to regulate sexual desire. For example, the defining qualities of masochism are coded as aberrant because it deviates from what is popularly considered as normalized sexual drives. Despite tremendous challenges to psychoanalysis in contemporary criticism and philosophy, the Oedipal structuring of desire constructs norms and regulations that maintain gender difference and the socially acceptable forms sexual orientation. Freud describes masochism as, The most common and most significant of all the perversions, yet it is characterized by its symptoms rather than how it functions defining it by, the desire to inflict pain (The Sexual Aberrations 157). This essay attempts to use the mischaracterization of masochism in psychoanalytic discourse that regulates sexuality through the rule of Oedipus to demonstrate how masochistic desire widens sex/gender binaries, and ultimately condemns social structures that limit agency and access to pleasure. Using Gilles Deleuze's influential essay *Coldness and Cruelty and Anti-Oedipus* as primary texts, the first half of this essay attempts to construct a theoretical basis to show how the masochistic function of fantasy is more than a simplistic submission to authority. In fact, masochism subverts oppressive social structures through an underlying contempt and critical resistance. The second half of the essay examines Kathy Ackers' feminist novel *Blood and Guts in High School* as a representation of the way that masochism can function as a radical point of resistance to dominant power structures exposing the operations of social and economic production that regulate sexual desire and gratification.

Mia Angelica Sosa-Provencio; Curriculum and Instruction, New Mexico State University
The CORE Program: A Student-Centered Community Literacy Initiative

In the Fall of 2009, 85 English 11 students at Rio Grande High School in Albuquerque, New Mexico began researching local literacy statistics. The result of this small research project in my Junior English class was that students became saddened and disheartened by the educational challenges facing our local community and New Mexico as a whole. They decided that they could not, in good faith, sit back and allow these numbers alone to speak for their community. My students took it upon themselves to do something. They decided to organize what would soon be called The South Valley Reading Rally, an effort to make culturally relevant literature more available to the community and to bring more awareness to the notion that reading is critical to our collective empowerment. Students were the chief organizers of this event. They led discussions around reading, sought food and book donations, contacted authors for support (most notably Rudolfo Anaya), enlisted entertainers, and reached out to various community organizations. It was our wish to help shape the educational culture of our school and community in a lasting and authentic way. The South Valley Reading Rally aimed to gather parents and students around this critical issue and begin building a visible network of people who are all working toward the same goal of improved literacy. The motivation, pride and confidence that resulted when students worked together in innovative ways to meet the challenges within their own community has thus far been an inspiring and life-changing phenomenon.

Punith Surkanti; Electrical and Computer Engineering, New Mexico State University
A Low Power High-Efficiency Four-Stage Class-AB Amplifier

In this paper, a low power and highly efficient four-stage class-AB amplifier is described. Class-AB amplifiers have a wide range of applications in portable electronic devices. They are used in the design of circuits such as audio amplifiers and LCD drivers. Most of these applications require class-AB amplifiers with low power, high efficiency, and stability for a wide range of loads. The proposed amplifier is a cascade of four negative gain amplifiers with a differential pair amplifier as the first stage and common source amplifier as the next three stages. A feed-forward path from the output of the first stage to the input of final stage enables the push-pull action. Both nested and reverse-nested Miller compensation techniques are used to stabilize the class-AB amplifier. Gate to drain feedback is used to decrease the open-loop gain of the amplifier, while improving stability and bandwidth. The circuit is stable for a wide range of capacitive and resistive loads. The amplifier has a dc gain of 81.7dB and unity gain frequency

of 5.12MHz when driving a load of 100F and 10k. Maximum output currents are 4mA of sourcing current from the positive power rail and 6mA of sinking current to the negative power rail. The total bias current is 132A when operating from 1.25V power supply. The current efficiency of the amplifier is 96.8%.

Xiaohui Tang; Human Development and Family Studies, Texas Tech
The Impact of Chronic Disease on Patients' Psychological and Behavioral Status

To investigate the differences of self efficacy management, depressive symptoms and social provision of patients who have one or more of chronic diseases (diabetes, hypertension and asthma) by their race, gender, educational level and disease type, 109 participants (age between 20 to 97) were included in this study. Multivariate analysis of covariance was conducted to test group differences. With the use of Wilks' Lambda, the dependent variables were significantly affected by whether patients have hypertension or not, $F(8, 94) = 3.108, p < .005$; by race, $F(8, 94) = 2.707, p < .05$; and by age, $F(8, 94) = 2.497, p < .05$. Univariate analyses of linear composite variables were done to describe the relative importance of each outcome variable in differentiating the group. Participants who have hypertension have lower self-efficacy for disease management, score lower on "guidance" but higher on "opportunity for nurturance," "attachment" and "reliable alliance" subscales of the Social Provision scale, compared to those participants who don't have hypertension; White patient subjects have higher levels of social support and self-efficacy, fewer depressive symptoms, and lower levels of reassurance of worth, compared to patient subjects of other races. Older subjects have higher self-efficacy and social support, but lower depressive symptoms, compared to young subjects. Limitations of the study are also stated.

Anne Thwaits; Art History and Education, University of Arizona
The Transparent Museum: Making the Invisible Visible

In order to remain financially stable and retain - or strengthen - their positions as essential and relevant cultural institutions, art museums must attract more visitors and reach new audiences. Unfortunately, museums can be intimidating places, and few people truly understand how they operate. Since the only museum personnel most visitors see are security guards, front desk staff, and an occasional docent leading a tour, the average museum visitor has no idea how many people and how many different roles are required to carry out all of the jobs in the museum. To those who are not aware of the number of decisions, debates, and activities that take place in a museum every day, the museum can seem like a static, uninteresting, unimportant place - a mere storehouse for old stuff - rather than a dynamic institution involved in the ongoing process of the writing and rewriting of narrative and the production of culture. Museums have always held a trusted place in the public's perception, but recent events have shown that that trust can be shaken. There is a recognized need for transparency in museums to create authenticity, which is highly valued in our culture in public officials and trusted institutions. For a museum, authenticity means sharing both the good and the bad in addition to the reasons, circumstances, context and challenges faced every day. My research presents case studies of the various approaches art museums are taking to making themselves more transparent, intelligible, and approachable for the public.

Rashmi Sharma Tiwari; Plant and Environmental Sciences, New Mexico State University
Identification of Salt Tolerant Genotypes and Molecular Markers in Backcross Inbred Population of Cotton

Salinity is a major abiotic stress during the cotton growing season. Although cotton is classified as moderately sensitive to salt with a threshold of 7.7 dS m⁻¹, its growth is adversely affected by salinity at all stages of the plant's life cycle. Therefore, identification of salt-tolerant genotypes in cotton germplasm is important for improvement in cotton production under salt stress. This study was conducted to identify salt-tolerant genotypes from backcross inbred line (BIL) population developed from Upland x Pima and to identify molecular markers associated with salt tolerance for marker-assisted selection. A population of 146 BC2F4 BILs was developed using *Gossypium hirsutum* (SG 747) as a recurrent parent and *G. barbadense* (Pima S-6) as a donor parent. The 146 BILs were phenotyped for seed germination and seedling stage at 250 mM NaCl. Molecular markers data was analyzed for linkage and combined with phenotypic data to identify quantitative trait loci (QTL). The result from seed germination study showed that *G. barbadense* (Pima S-6) was tolerant at seed germination with 87.75% of control germination with water, whereas *G. hirsutum* (SG 747) was sensitive with 38.52% of its control germination. Plant height, leaf number, shoot and root fresh and dry weight were significantly decreased under salt stress. This phenotypic study allowed to select significantly salt tolerant BILs. Four QTLs for plant height and leaf number were detected on two linkage groups. More DNA markers will be added to the linkage map for better genome coverage and identification of more QTLs for salt tolerance.

Erin Trauth; English, Texas Tech

Creating Meaning for Millennials: Bakhtin, Rosenblatt, and the Use of Social Media Programs in the Composition Classroom

While the internet is ablaze with the potential benefits of employing social media technologies in the classroom (a simple Google search generates over 14,000 applicable web pages), very little scholarly work in composition has been published on the topic. For reasons of resistance to typically distracting technologies or perhaps a simple lack of understanding as to how composition instructors might meet their students needs through the use of social media programs, published work on how social media usage in the composition classroom might enhance and embody the very rhetorical theories we study and employ in graduate-level coursework is negligible. As potential future instructors of composition, then, it seems logical to apply what we know about rhetoric to the prospective use of social media to better our own pedagogies. Employing the ideas of Mikhail Bakhtin's social construction of knowledge and Louise Rosenblatt's student-centered pedagogy, I will explore and present the many complementary uses of social media technologies such as Facebook and Twitter in the composition classroom in order to generate a new model of instruction one which challenges unilateral exchanges of knowledge and centers on a dialogical, student-centered model of composition instruction.

Harish Valapala; Electrical and Computer Engineering, New Mexico State University

An Extremely Low Quiescent Current Low-Dropout Voltage Regulator with Improved Transient-Response

In this paper we present a true micro-power LDO (Low-Dropout) voltage regulator design which uses only 1.2 μA of quiescent current. A regulator is a device which supplies a constant output voltage irrespective of changes in the input voltage or load current. These devices are widely used in portable electronic devices, such as cell phones and iPods. Since it is micro-power, this LDO is suitable for implantable electronic devices, such as pacemakers, which require extremely long battery life. A push-pull high-slew-rate LDO is presented in this paper. We present four different configurations of a circuit and compare them. The first configuration is adapted from [1]. The next two configurations are improved versions of the first configuration. The fourth configuration is a true micro-power design. The adapted configuration is uncompensated and requires a quiescent current of 51.2 μA . The second and third configurations are compensated versions of configuration 1. The quiescent current for the second and third configurations are 51.2 μA and 13 μA , respectively. The fourth configuration is a micro-power version of the third configuration, using only 1.2 μA of quiescent current. All four configurations have two sub-circuits, a reference buffer and an error amplifier. The reference buffer is a high input-impedance two-stage CMOS (Complementary Metal Oxide Semiconductor) op-amp capable of driving the low input impedance of the error amplifier. The error amplifier is also a two stage amplifier. It consists of low-impedance source cross-coupled pairs and wide-swing output mirrors as its first stage, and a common source amplifier with a huge pass transistor as its second stage.

Rose Ann Vasquez; Government, New Mexico State University

Examining the U.S. Department of Homeland Security's National Strategy of Resilience in Food Security at the U.S.-Mexican Border in the Southwestern Region of El Paso, Texas and Ciudad Juarez

Food is essential to life and the food supply chain continues to span and connect the globe. In this era of globalization, interactions between stakeholders in food safety and security have become increasingly interdependent and complex. Increased interdependence has led to an emphasis in security in the areas of food safety and security, and even birthed a new concept in the United States food defense. Resilience, or the ability of a complex system to withstand a crises, whether natural or man-made, is a current U.S. Department of Homeland Security (DHS) national strategy focused on protecting Critical Infrastructure/Key Resources (CI/KR), including agriculture. Resilience not only encompasses prevention of risks to CI/KR but also shifts its focus to building resilient communities that can function as the crisis unfolds. This paper asks, How does resilience apply to food security at the U.S.-Mexico border region of El Paso, TX and Ciudad Juarez? using research conducted via the Frontier Interdisciplinary eXperience (FIX) program. FIX is a multi-institutional program that focuses on interdisciplinary research in the areas of border security, food security and international trade. This paper explores the recent DHS legislation and incorporates two specific case studies conducted at the U.S.-Mexican border: Heifer, International and the Southwest Border Food Safety and Defense Center. In summary, the paper examines the recent shift to resilience in homeland security, explores critical infrastructure resiliency versus community resiliency and its application to the border region, and documents research conducted in the border area.

Selene Virk; Biology, New Mexico State University

Microarray Analysis of Transcripts Involved in Ion Transport and Binding in Xenopus Laevis Inner Ear Reveals Age-related Specificity

The inner ear is a complex three-dimensional structure with both auditory and vestibular functions. We are interested in the analysis of gene expression patterns in the developing and mature inner ear of the African clawed frog, *Xenopus laevis*. Of particular interest are genes involved in ion transport and binding due to their established role in processes crucial for auditory and vestibular function. To advance this effort, we profiled RNA extracted from the *Xenopus* inner ear using the Affymetrix GeneChip *Xenopus laevis* Genome Array, which contains 15,491 non-control probe set identifiers (PSIDs). We analyzed the expression of PSIDs involved in ion transport or ion binding in the *Xenopus* inner ear at three developmental ages: juvenile, larval stages S56/S58, and S50/S52. Our analysis resulted in 51 PSID candidates for differential expression, 47% of which were only differentially expressed in the S50/S52 - juvenile comparison. The majority of the PSIDs up-regulated in the S50/S52 age are in the Gene Ontology molecular function categories of calcium or zinc ion binding, with the PSID designated as "similar to parvalbumin" manifesting the greatest log₂ fold change of 10.4. The PSID with the greatest down regulation was the non-voltage gated sodium channel *scnn1b-a*, with a fold change of -5.5. These results suggest that, during the maturation of the inner ear, the gene expression program that is up regulated is one that favors ion binding over ion transport. In the future, we would like to quantify the expression differences observed in this study using real time PCR.

Nancy Wasser; Curriculum & Instruction, New Mexico State University

Adult-erating Childhood: All Work and No Play Takes Childhood Away

Market Fundamentalism in the Neoliberal Age is forcing a product-oriented childhood on children in the United States at increasingly younger ages, stripping them of their natural birthright—a genetic predisposition for play. Increasingly, the marketplace targets children as a niche market with infinite profit-generating potential. Promoters of toy sales employ a nag factor impelling children to cajole parents into participating in a massive over-consumption of toys that children play with less while turning youngsters away from parents-as-purveyors of wisdom to commercial markets as arbiters of right-action. Aggressive marketeering promotes age compression claiming today's children are more sophisticated and mature than their predecessors and motivating parents to purchase adult oriented electronic equipment to increasingly younger children. Conscious indoctrination of consumerism into the minds of children promotes knowledge of brand names as social status among peers. Depriving children of imaginative play impacts early childhood development on many fronts from physical effects such as childhood obesity to psychological, social and cognitive effects like self-regulation, social collaborative activity, and emergent literacy. Educators must counteract market influence by advocating and promoting natural play.

Megan M. Wong; English, New Mexico State University

Lacunae: Poetic Gaps & Aesthetic Leaps

Drawing from those empty spaces in personal and family history, these poems explore the gaps in memory and location that come with being human. The formal and aesthetic leaps that these poems make to represent and interrogate those gaps will be discussed.

Qiang Yan, Ayman Ghunaim; Marketing, New Mexico State University

Work Alienation of Marketing Employees and the Effectiveness of Marketing Strategies

This paper tries to explore antecedents and mechanisms that shape work alienation of marketing employees. Work alienation means that employees find that their work effort may not necessarily bring personal benefits to them and they think their personal goal is not in tandem with, or generally in conflict with, the company's goals. Work alienation in modern economy may often appear in a much less radical form. Employees who have high extent of work alienation often work less efficiently than other employees. Work alienation may also suppress innovations of individual employees and hence reduce the potential of the firm. In other cases, employees may just follow orders and implement strategies passively, which often causes inefficiency and ineffectiveness of implementing marketing strategies or advocate the firm culture and firm brand (Gilly and Wolfinbarger, 1998). In other words, in modern economy work alienation may still undermine the entire productivity of the firm. As some marketing research have already shown, salesperson's alienation or low morale negatively affects consumers and hence the real effectiveness of marketing strategies (Homburg and Stock, 2004). In this case, salesperson serve as a representative of the firm and consumers' perceptions on salesperson in turn shapes consumers' perception of the product, brand, and the firm.

The paper argues that culture, organizational structures, and particular motivational strategies greatly moderate the morale and work alienation of marketing employees. The paper then analyzes mechanisms that may increase work alienation and finally impact the performance of firms. The paper shows that work alienation will reduce employees' internal identification of the company and it will also undermine the effectiveness of marketing strategies. Thus, to limit work alienation can be deemed as an indirect means to improve business performance and to increase productivity of the firm.

Tanya D. Zuk; Media Arts, University of Arizona
Virtual Lesbian Looks: Curating Online Exhibition

This presentation will focus on my experience curating a virtual segment of a film festival featuring lesbian-centric web series, paying particular attention to the importance of the democratizing possibilities of new media and Internet technologies in the representations of minorities. Virtual Lesbian Looks is a new segment of a larger film series in Tucson, Arizona that is currently in its 18th year, which focuses on providing a variety of lesbian and bisexual voices to the community. In recent years with the advent of streaming video technologies becoming easily accessible through online distribution a variety of minority created media has become financially feasible, allowing worldwide exhibition and social interconnectedness. Representations that are marginalized in mainstream traditional media can create virtual locations to exhibit their work, culture and ideology. The incorporation of these works into traditional film festivals is slow moving creating a need to highlight these new and innovative works into the larger minority and mainstream culture.

Lesbian Looks Film & Video Series: <http://lgbcom.web.arizona.edu/lesbianlooks/lobbydoor.html>

Virtual Lesbian Looks: http://lgbcom.web.arizona.edu/lesbianlooks/virtual_lesbian_looks/virtual_LL_2010.html

Kefaya; Communication Studies, New Mexico State University
The Pragmatic Function of the Hidden Question

This paper investigates the communication phenomenon among American youth at NMSU who use the tone of a question when stating statements. The researcher calls this phenomenon the hidden question to differentiate it from the regular question. Data were collected over the course of seven weeks, from October 13th to December 8th 2010, and included 81 observations and six interviews. Participants included 13 female and 9 male speakers ranging in age from 21 to the mid 30s. Results indicate that speakers use the hidden question regardless of their position in a hierarchy. What determines its use is the persons position of power during communication. If the speaker is implicated in a more powerful position than the listener, as when they give orders or negative feedback, then the speaker will use this form to soften his or her speech. If the speaker occupies a less powerful position than the listener, as when defending ones self, she or he will use it to get approval and confirmation. If the parties are in an equal position of power, as in telling a story to a colleague, they use it to seek sympathy and empathy. The paper argues that this phenomenon is not implicit regionally, but rather is a wide phenomenon that includes U.S and might be valid in other countries as well. The paper also argues that media may impact the spread of the phenomenon to youth who adopt it unconsciously.

Phanidhar; Biology, New Mexico State University
Multiple Immune Surveillance Mechanisms to Regulate Gut Microbes in the Anopheles Gambiae Mosquito

Throughout the life stages of the Anopheles gambiae mosquito a diverse bevy of microbes live in the gut. The gut maintains homeostasis with commensal bacteria. It has been demonstrated that Drosophila flies produce antimicrobial peptides (AMP) and reactive oxygen species (ROS) to watch the gut commensal flora (Ryu et al.,2006). IMD pathway is involved in the regulation of gut AMP expression (Ryu et al.,2008)and the MAPK p38 controls the Duox expression (Ha et al., 2009). In this study we examined the gene expression pattern of the AMP genes (Defensin 1 and Defensin 4), genes Caudal and Dual Oxidase (Duox) across the mosquito life stages. Our data suggest that the mosquitoes use different immune regulatory circuits, NF-kB dependent and independent ways, to watch the gut flora, which implies that multiple immune surveillance mechanisms are involved in the gut homeostasis.

Ramesh; Electrical and Computer Engineering, New Mexico State University
Active-Pixel CMOS Image Centroid Computation Sensor

This paper introduces the first active-pixel CMOS image centroid computation sensor, which computes the first-moment of an incident image. Centroid computations sensors find applications in object tracking and wave-front

correction. All commercial CMOS cameras use active-pixel technology. The present state-of-the-art centroid computation CMOS image sensors use passive-pixel technology. Despite the fact that passive-pixel CMOS image sensors utilize lower area, they are prone to noise at low illumination levels. In passive-pixel architectures, the photo-currents from all the pixels are added together and then amplified. The active-pixel sensors consist of an integrating amplifier in each pixel, so that the data of every pixel is amplified first and then added with other pixels data. The proposed CMOS image sensor was fabricated in a 0.5-micron process on a 3mm x 1.5mm die. It consists of a 64 x 64 array of active-pixels. When an optical wave is focused onto this array, photo-detectors convert the light energy into electrical charge, integrating the charge on a capacitor in each pixel. Amplifiers convert the resulting voltages on the capacitors into currents. The currents from all pixels in a single row/column are summed and these summed currents are used as inputs to the x/y-centroid circuits, whose outputs are voltages. These output voltages represent the (x, y) coordinates of the centroid of the incident image.