

Presented by the Graduate Student Council



**Schedule Overview**

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| **Time** | **Event** | **Location** |
| 12:00-5:00 | Box Lunches | Domenici Hall Atrium |
| 12:00-1:00 | Symposium 1 | Domenici Hall Rooms 006, 018, 102, 106 |
| 1:00-2:00 | Symposium 2 |
| 2:00-3:00 | Symposium 3 |
| 3:00-4:00 | Symposium 4 |
| 3:30-5:00 | Keynote Speaker | Domenici Hall Room 109 |
| 4:00-5:00 | Symposium 5 | Domenici Hall Rooms 006, 018, 102, 106 |
| 5:00-6:00 | Symposium 6 |
| 6:30-8:30 | Private Poster Reception  \*You must register for this event here: <https://nmsupsych.az1.qualtrics.com/jfe/form/SV_6AqCTeyhPJdVfj7> | Domenici Hall Atrium |

**Keynote Speaker**



***Dr. Ryan Ashley Associate Professor, Animal and Range Sciences, NMSU***

**Placentas and Tumors: The similarities and disparities**Numerous physiological parallels exist between placental and tumor formation, allowing us to investigate mechanisms controlling not only pregnancy establishment, but also tumor biology.

***Domenici Hall Room 109  
April 7th, 2017, 3:30 pm***

**Oral Presentations**

**Domenici Hall Rooms 006, 018, 102, 106**

**Symposium 1, 12:00-1:00**

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| Room 006 – Psychology/ Plant & Environmental Sciences |
| The Sexual Double Standard and Condom Use: Applying the Theory of Planned Behavior *Yuliana Zaikman & Erin A. Vogel*  Objective: The sexual double standard (SDS) is the phenomenon whereby women are derogated and men are rewarded for sexual behaviors. Individuals vary in their attitudes toward the SDS and the extent to which they believe it exists and affects them. Two studies utilized the Theory of Planned Behavior (TPB) as a framework for examining the effects of the SDS on condom use intentions. Design: Participants were recruited from Amazon Mechanical Turk (Study 1: 124 participants; Study 2: 187 participants). Study 1 was correlational. Study 2 used a 2 (SDS beliefs: strong or weak) X 2 (SDS relevance: strong or weak) between-subjects design. Main Outcome Measures: Participants completed questionnaires regarding condom use. Results: In Study 1, male participants who endorsed the SDS perceived condom use to be less difficult and had greater intentions to use condoms. In Study 2, female participants who were primed to believe that the SDS existed or was personally relevant to them perceived condom use as less difficult and more normative, and had greater intentions to use condoms. Conclusion: Endorsement of the SDS can influence intentions to use condoms. Results are discussed in relation to the SDS literature as well as health promotion and disease prevention programs. |
| Finding the Green Ketchup Bottle: How Secondary Visual Features Guide Attention *Collin Scarince & Michael C. Hout*  Imagine making sandwiches over at a friend’s house. After putting most of the sandwich together, you look on the counter for a bright-yellow squeeze bottle of mustard, but you don’t find one. Your friend tells you that the condiment is on the counter, so you adjust your search to now look for anything yellow. You then find a jar, rather than a bottle, of mustered textured with little seeds. We investigated how people learn to use such non-defining features in visual search tasks. Participants searched for images of real-world objects amongst distractors that appeared in one of four colors. For the critical manipulation, target items disproportionately possessed one of the four colors across the entire experiment. Participants found targets with the dominant feature more quickly than those with a rare feature, and were more likely to commit an error when targets had a rare feature. |
| Hierarchical Structures and Testing Effects as Desirable Difficulties *Alexandra Smith & Dominic Simon*  The goal of this study was to gain understanding as to how memory is affected by both hierarchical presentation of material and testing. The first phenomenon is that hierarchical structure will facilitate learning of material when material is structured in an organized fashion. The second phenomenon is that multiple tests over studied material will demonstrate enhanced learning instead of multiple sessions of studying the material. In order to assess recall, participants returned 48 hours after the initial study session for a final recall test. We predict that the material presented in an organized fashion and tested will result in better recall of material than disorganized material that is tested. However, we also predict that all material (disorganized and organized) tested multiples times will result in better recall than the materials that were only studied and not tested. This project is currently undergoing data analysis. |
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| Room 018 - Biology/Curriculum & Instruction |
| Temperature adaptation influences symbiont specificity in  an experimentally evolved bobtail squid-luminous bacterium association.  *Randy Coryell, Alejandra Enriquez, Lizet Martinez, & Michele Nishiguchi*  Marine bacteria encounter a myriad of abiotic factors that can influence survivability and adaptation. Specifically, bacterial symbionts that are environmentally transmitted have dual roles that select for both phenotypic and genetic adaptations that influence survival in the planktonic as well as the symbiotic state. Host animals may shift their native range in response to changing local environmental conditions like temperature, while free-living symbionts need the ability to either migrate with their native hosts or infect novel hosts that are found in their geographical range. We used an experimental evolution approach to investigate whether adaptation to specific environmental conditions (e.g. temperature) increased the ability of symbiotic bacteria to accommodate new hosts from different geographic areas and temperature regimes. Results from this study will provide a better understanding of whether adaptation to abiotic fluctuations affects holobiome fitness, and will give insight to the degree at which climate change influences beneficial associations. |
| Autophagy in Grade IV Astrocytoma Cultures:  Quantitative PCR Analysis of Beclin1 Gene Expression  *Manasi P. Jogalekar & Elba E. Serrano*  Grade IV astrocytoma is an aggressive brain cancer with a high recurrence rate and low survival prospects. Previous work in our laboratory has shown that a Grade IV astrocytoma cell line exhibited distinct morphologies when cultured in different microenvironment’s monolayer or hydrogel. Monolayer cells adhered to the rigid substratum and appeared flat, while cells formed multi-layered clusters in hydrogel. Moreover, ultrastructural analysis showed the presence of autophagic vacuoles in both monolayer and hydrogel cultures. The current study was undertaken to probe genetic pathways underlying autophagy in the two culture conditions. We used quantitative polymerase chain reaction to determine the expression of Beclin1 gene, a key regulator of autophagy, in cultures. Results suggest that Beclin1 has a lower expression in hydrogel than in monolayer cultures, when normalized with two reference genes ACTB and GAPDH. Taken together, these results indicate that the hydrogel environment offers a novel platform to culture astrocytoma cells and that autophagic pathways may be a target for developing interventions against this debilitating disease. |
| Normalization and technical replication impact the results of RNA sequencing experiments  *V. Bleu Knight & Elba E. Serrano*  Best practices for RNA sequencing include the replication of parameters in the experimental workflow that can introduce variation. This project aimed to uncover the sources of variation in our experiments for two cell lines that are routinely used in our laboratory: human neural stem cells and normal human astrocytes. Technical variance data were analyzed from replicate cell lots, library preparations, and flow cells for data normalized with three different methods. ANOVA analysis was used to evaluate genes differentially expressed between the two cell types. Principal variance component analysis indicated that the largest component of technical variance was library preparation. Results indicate that the contributions to variance and the identification of differentially expressed genes are dependent upon the choice of normalization method. |
| Education in the Age of Trump  *Ross Bussell*  This presentation will focus on the potential ramifications of Trumps presidency on public education in the United States. Viewing Trump's administration through a Critical Pedagogy lens, and integrating the works of theorists including Henry Giroux, Paulo Freire, Michael Apple, and Kevin Kumashiro, this presentation will provide a brief synopsis of where we could potentially be headed. |
| Room 102 - Astronomy |
| Extinction Mapping of Nearby Galaxies with LEGUS  *Lauren Kahre, Rene Walterbos & The LEGUS Team*  Dust is commonly used as a tracer for cold dense gas, either through IR and NIR emission maps or through extinction mapping, and dust abundance and gas metallicity are critical constraints for chemical and galaxy evolution models. Extinction mapping has been used to trace dust column densities in the Milky Way, the Magellanic Clouds, and M31. The maps for M31 use IR and NIR photometry of red giant branch stars, which is more difficult to obtain for more distant galaxies. We generate extinction maps using photometry of massive stars from the Hubble Space Telescope for several of the nearly 50 galaxies observed by the Legacy Extragalactic Ultraviolet Survey (LEGUS). The derived extinction maps will allow us to correct ground-based and HST Halpha maps for extinction, and will be used to constrain changes in the dust-to-gas ratio across the galaxy sample and in different star formation, metallicity and morphological environments. Previous studies have found links between galaxy metallicity and the dust-to-gas mass ratio. We present a study of four LEGUS galaxies spanning a range of distances, metallicities, and galaxy morphologies. We see clear evidence for changes in the dust-to-gas mass ratio with changing metallicity. |
| APOGEE Chemical Abundances of the Sagittarius Dwarf Galaxy  *Steen Hasselquist, Matthew Shetrone, Andrew McWilliam, Verne Smith, & the APOGEE team*    The Apache Point Observatory Galactic Evolution Experiment (APOGEE) provides the opportunity to measure elemental abundances for C, N, O, Na, Mg, Al, Si, P, S, K, Ca, Ti, V, Cr, Mn, Fe, Co, and Ni. We analyze the chemical abundance patterns of these elements for ~ 350 red giant stars belonging to the Sagittarius Dwarf Galaxy (Sgr). This is the largest sample of Sgr stars with detailed chemical abundances and the first time C, N, P, K, V, Cr, Co, and Ni have been studied in Sgr. We find that the Sgr stars with [Fe/H] &gt; -0.8 are deficient in all elemental abundance ratios (expressed as [X/Fe]) relative to the Milky Way, suggesting that Sgr stars observed today were formed from gas that was less enriched by both Type II and Type Ia SNe. By examining the relative deficiencies of the hydrostatic (O, Mg, and Al) and explosive (Si, K, and Mn) elements, we support the argument that previous generations of Sgr stars were formed with a top-light IMF, one lacking the most massive stars that would normally pollute the ISM with the hydrostatic elements. |
| The Vulture Survey  *Nigel Mathes, Christopher W. Churchill & Michael T. Murphy*  We present detailed measurements of the redshift path density, equivalent width distribution, column density distribution, and redshift evolution of ${\MgII}$ absorbers as measured in archival spectra from the UVES spectrograph at the Very Large Telescope (VLT/UVES) and the HIRES spectrograph at the Keck Telescope (Keck/HIRES) to equivalent width detection limits below 0.01 angstroms. This survey examines 432 VLT/UVES spectra from the UVES SQUAD collaboration and 170 Keck/HIRES spectra from the KODIAQ group, allowing for detections of intervening MgII absorbers spanning redshifts 0.1 &lt; z &lt; 2.6. We employ an accurate, automated approach to line detection which consistently detects redshifted absorption lines. We find that weak MgII absorbers, those with equivalent widths less than 0.3 angstroms, are physically distinct and evolve separately from very strong MgII absorbers, which have equivalent widths greater than 1.0 angstroms. |

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| Room 106 –  Mechanical & Aerospace Engineering/Electrical & Computer Engineering |
| Performance analysis of piezomagnetoelastic energy harvesting systems  *Sandra Zimmerman, Hichem Abdelmoula, & Abdessattar Abdelkefi*  In this study, the effectiveness of a piezoelectric energy harvester when having dual magnetic forces at its tip is evaluated for low-frequency excitation purposes. First, the exact finite element magnetic force is accurately fitted with a fifth-order polynomial representation in order to use it for low spacing distances between the two magnets. Second, the static pull-in of attractive magnetic forces with same spacing distances is determined and compared to the static pull-in of single attractive magnetic force. Third, through an eigenvalue problem analysis, the impacts of the spacing distance between the magnets on the fundamental natural frequency of the energy harvester are deeply studied. Fourth, a nonlinear distributed-parameter model is derived using the Galerkin discretization. The results show that the inclusion of the second magnetic force with an attractive interaction results in a delay in the static pull-in and a decrease in the fundamental natural frequency for same spacing distances. It is also shown that hardening behaviors take place in the dual attractive magnets compared to softening behaviors in the single magnet scenario. It is demonstrated that the attractive dual magnets with same spacing distances lead to the presence of broadband resonance regions when the spacing distance between the magnets decreases to lower values. This suggested design and analysis gives guidelines about the possibility of designing low-frequency piezoelectric energy harvesters with broadband resonance regions. |
| Buckling and energy harvesting characteristics of a  piezomagnetoelastic system subjected to flow-induced vibrations  *R. Naseer , H. Dai , A. Abdelkefi, & L.Wang*  The energy harvesting from vortex-induced vibrations is investigated. An attractive magnetic force is used to decrease the structural natural frequency of the energy harvester and hence decrease the needed shedding frequency to obtain resonant regions. A lumped-parameter model is developed to couple the dynamics of the beam and the generated voltage. A modified van der Pol wake oscillator is considered to model the fluctuating lift coefficient. A dipole-dipole interaction for the magnetic force is assumed in order to represent the magnetic force. The effects of the spacing distance between the magnets on the buckling configuration of the energy harvester are first studied through a static analysis. Then a frequency analysis is performed in both monostable and bistable regimes. Then a nonlinear dynamic analysis is carried out. The analysis in monostable regime shows that a decrease in the attractive spacing distance results in lower resonant wind speeds. It is also shown that the electrical load resistance significantly affects the levels of the harvested power. |
| Finite Difference Monodomain Modeling of Cardiac  Tissue with Optimal Parameters  *Riasat Khan & Kwong T Ng*  Simulation of cardiac tissue propagation using the monodomain model is very popular. The governing diffusion-reaction equation is solved with the explicit finite difference method. Though this method is simple but it is restricted by the stability limit of forward Euler time steps. In this work, a semi-implicit is used to solve the stability problem, with an implicit scheme for the diffusion term and an explicit scheme for the nonlinear ionic current term. Both first and second order semi-implicit techniques are measured and the parallel pattern search software (APPSPACK) is used to find the optimal parameters. APPSPACK is asynchronous parallel pattern search software which is developed by the Sandia National Lab. Higher order finite difference techniques are used to discretize the spatial parameters which gives higher spatial accuracy. The action potential is expanded in terms of Lagrangian polynomials for the higher order finite difference approach. Details of the different approaches will be presented with simulation results. |

**Symposium 2, 1:00-2:00**

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| Room 006 - Mechanical Aerospace & Industrial Engineering |
| Integration of Engineering Capstone within a Maker Space Environment  *Luis Martinez*  Since the spring semester of 2016, The Aggie Innovation Space and the College of Engineering have targeted capstone projects to promote opportunities for technology acceleration. It is intended to promote an interdisciplinary environment capable of enhancing the overall quality of capstone projects complemented with a disciplined consultation process. This has allowed capstone students to acquire new technical skills not often found in their academic curriculums while applying them in their projects. This has helped students view capstone projects as opportunities rather than requirements as well as help them realize that the newly developed technologies may be capable of solving a problem for more than one client. This presentation will provide current results, as well as an overview of the Aggie Innovation Space and the consultation model used for capstone projects. |
| Effective Conductivity of Composite Materials with Curved Fibers  *Dymtro Kuksenko, Borys Drach, & Igor Sevostianov*  Fiber reinforced composite materials are used in many industries including aerospace, automotive, alternative energy etc. In this study, we focus on the electrical and thermal conductivity properties of composites reinforced with curved fibers of circular cross-sections. We use two approaches: direct numerical using Finite Element Analysis and analytical approximation via micromechanical homogenization. The latter approach is based on the replacement of a continuous fiber with the equivalent set of spheroids. The fibers are continuous and assumed to have sinusoidal paths. The geometric parameter describing the fiber paths is crimp ratio, which is defined as the ratio of the amplitude of the path to its wavelength. We consider three different fiber arrangements and three crimp ratio values. A good correspondence between the direct numerical and the analytical approximation results is observed. |
| A new configuration of separating drones with swarming capabilities  *Mostafa Hassanalian & Abdessattar Abdelkefi*  A conceptual design for an unmanned air vehicle (UAV) with the capability to convert to five smaller fixed wing micro air vehicles (MAVs) is carried out. In the design of this UAV, five drones are designed so that every separated MAV and the remained parts have the requirements of a drone. Applying a sizing process, aMAV with delta planform with aspect ratio of 1.52, weight of 800g, and wingspan of 70cm which is considered as mother plane and is placed in the center of drone is designed. With applying the same process, the designs of four similar MAVs with rectangular planform with an aspect ratio of 1.4, weight of 450g, and wingspan of 50cm are performed. S5010 airfoil is selected as cross section of each wing and a 3D panel analysis is carried out for each scenario to determine the aerodynamic coefficients and the characteristics of the drone. The dimensions of the vertical tails and control surfaces for delta and rectangular wings are also specified. For this drone, different types of separation mechanism areproposed and shown which enable every MAV to become apart simultaneously. This new design and configuration can be considered as a future drone candidate with swarm capabilities. |
| Investigations on galloping force representation for control and energy harvesting applications  *Umer Javed & Abdessattar Abdelkefi*  Significance of galloping systems from control and energy harvesting perspectives has made the accurate representation of galloping force really important. In the current study, the dynamics of galloping systems with respect to different aerodynamic force representations is deeply investigated. The Galerkin discretization is utilized and a distributed-parameter model is developed in order to analyze the response of a galloping-based piezoelectric energy harvester subjected to uniform wind speed. Different polynomial expressions are utilized to model the aerodynamic force for the same experimental data and conditions.These polynomial representations of the experimental aerodynamic force are then used in the developed distributed-parameter model and different responses are examined. It is observed that a different order of the polynomial representation of the force or a choice of different coefficients for the same order of the polynomial can entirely change the qualitative as well as the quantitative behaviors of the galloping system. It is concluded that a wrong choice in choosing the galloping force polynomial expression for given wind conditions would result in inaccurate predictions of the response of the galloping system for control or energy harvesting applications. |

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| Room 018 - English |
| Selection of the Native: Survival and Extinction in Hardy’s The Return of the Native  *Hayley Ellisor*  In Thomas Hardy’s The Return of the Native (1878), Diggory Venn is described as “one of a class rapidly becoming extinct in Wessex, filling at present in the rural world the place which … the dodo occupied in the world of animals.” A year before the novel’s publication, the “dodo” had been added to the ninth edition of the Encyclopedia Britannica by ornithologist Alfred Newton, whose research focused on species extinction and conservation. While much scholarship has traced Hardy’s debts to Charles Darwin’s work, little has been written regarding Netwon’s influence on Hardy’s work. I argue that Newton’s work shaped Hardy’s representation of anxieties about extinction in small, rural communities like Egdon Heath. I will identify the Newtonian ways in which characters interact, adapt, and evolve to avoid the possibility of extinction, and how Hardy uses these theories to illustrate the similarities between Victorian society and the natural world. |
| “Restless Exaltation”: Feminine Selfhood in Clarice Lispector’s Short Fiction  *Robin Kucskar*  This essay explores the connections between Hélène Cixous’s theoretical writing on “écriture féminine,” and Clarice Lispector’s implementation of this principle in her fiction. Using Cixous’s “The Laugh of the Medusa” as a lens for looking back at and clarifying the feminism at work in Lispector’s texts, which predate it, I interrogate the methods both authors use to express the interiority of women and/or women characters Furthering Cixous’s claims regarding the literal and textual limitations women face in a world and language defined by the patriarchy, I discuss various studies of the limits of the available discourse and the modes women writers must employ to express feminine thought and being. Most striking in the short stories “The Buffalo” and “Love,” Lispector evades, manipulates, and alters the language by which she and her characters are confined, to express the “restless exaltation” of a woman who has identified and accessed her selfhood. |
| Demythologizing as a Tool for Subversion in Angela Carter's The Passion of New Eve  *Ryan Sparks*  In Kim Evans BBC interview with Angela Carter, Carter explains that, when writing The Passion of New Eve (1977), her intention was to construct a deeply serious piece of fiction about gender identity; yet, the novel is often overlooked in popular criticisms of her oeuvre (15.9.92). In an attempt to bring recognition to Carter’s work, my presentation will begin by describing the ways in which the protagonist's experiences teach h/er to utilize false autobiography and gender performativity as ways to defend h/er experiential self against those with power. Although Carter’s protagonist calls for a new language to describe h/er unique experiences, I will then demonstrate the failure of any such language. Finally, I will conclude by showing the ways in which Carter offers her Demythologizing Projects as a tool to subvert the dominant culture. |
| "All Hail, Macbeth" as a Queen Elizabeth Play  *Sherri Garcia*  After his succession, King James oversaw a campaign to villainize Queen Elizabeth’s androgynous representation. During his reign, characteristics of motherhood and sexuality were all coded as disobedient femininity in need of patriarchal supervision demonstrating the monarch’s anxieties of female power. Despite this knowledge, many critics have labeled Shakespeare’s Macbeth as a King James play, by accepting and perpetuating hegemonic masculinist views and villainizing characters such as Lady Macbeth, King Duncan, and the Wayward sisters for their androgynous representation. What should trouble contemporary readers is that this misogynistic outlook replicates the king’s paternalistic and absolutist ideals, which is short-sighted and questionable. To contrast these analyses, this argument illuminates the subversive allusions of Elizabeth that thrived within these androgynous figures. Through a feminist lens, these positive representations will reveal a nostalgia that was lingering within the state and may also give insight to the critique Shakespeare may have proffered to King James. |

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| Room 102- Science Management, Civil Engineering, & Mathematics |
| Developing the Water-Budget and Calculating the Recharge for the Mesilla Bolson Aquifer  *Pooneh Pahlevani & Dr.Zohrab Samani*  Mesilla Boson is a major groundwater basin in Sothern New Mexico. The Mesilla Bolson is an extensive intermountain aquifer which extends from Leasburg in Southern New Mexico to Northern Mexico. It is the main source of water for municipal, agricultural, and industrial water use and is critical for the economic, social, and environmental sustainability of Southern New Mexico. This is the only source of fresh water which sustains the agricultural and industrial activities in dry years. There is an urgent need to assess the water budget and recharge and thus the sustainability of this aquifer. The goals of this project are to develop the water budget and recharge to the Mesilla Bolson as it changes depending on the availability of the surface water This will provide the range of recharge within the aquifer under various operating conditions and will provide a tool for future assessments. |
| Modeling capillary rise in clinoptilolite zeolite and riparian soils  to sustain vegetation in water scarce areas  *Aldo R. Pinon-Villarreal, A. Salim Bawazir, Manoj K. Shukla,*  *Zohrab Samani, & J. Phillip King*  Clinoptilolite Zeolite (CZ) is being considered as a wicking material for re-vegetation of riparian regions in arid environments where depth to groundwater is less than 3 m. Simulation of water fluxes and water contents in boreholes filled with CZ and in-situ unamended riparian soil (RS) for the purpose of riparian re-vegetation was modeled using Hydrus-1D and compared to water content measurements. Water content, depth to groundwater, and climate data collected in 2012 and 2013 during a field experiment in the Rio Grande flood plain, New Mexico, USA were used to calibrate and validate the Hydrus-1D model. Predicted borehole water content agreed well with measurements when the groundwater levels were nearly stable. Results show that Darcian nodal velocities slowed down (~ 0 cm/d) within the top 60 cm of the CZ profile therefore limiting evaporation losses. This phenomenon, however, can be a disadvantage for growing shallow-rooted plants. |
| Examining the Relationship Between Built and Social Captial  *Margie Vela*  Rural communities require capital for sustainable development. Financial capital, built capital, social capital, cultural capital, human capital, political capital, and natural capital intersect to form relationships that are unique to every community. Using US Census data, this study conducts a distribution analysis of indicators of built and social capital: water infrastructure (built capital) and educational attainment (social capital), for two communities along the US-Mexico Border. Sunland Park, NM and Vinton, TX are considered colonias by USDA standards, lacking various forms of infrastructure. Distribution analysis reveals that there are differences in the educational attainment of men and women in communities lacking water infrastructure when compared to fully served communities, which can inform future research prospects and policy makers for future investments in rural development. |
| Adaptive Dynamics of a Competative Lotka-Volterra Model  *Abdullah Abu-Rqayiq*  Adaptive dynamics is a powerful approach for studying long-term evolutionary dynamics of genetic transmitted phenotypic traits. In my research I use techniques from adaptive dynamics and singularity theory to classify and study singular strategies of strategy functions derived from a classical Lotka-Volterra competition model. I classify singularities according to their topological codimension, normal forms, and universal unfoldings. I use PIP and MIP plots for visualizing my results. |

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| Room 106 - Government & Economics, Applied Statistics |
| Life Satisfaction of Males and Females: Urban and Rural Comparisons  *Linh Do*  Life satisfaction is an important component of human well-being. People experience varying degrees of life satisfaction. This study aims to investigate the differences that may exist between American males and females in the context of life satisfaction, with an emphasis on specific distinctions between rural and urban areas. The data is collected from the International Social Survey Programme (2016), and probit model is employed. |
| On the challenges facing the United States in light of changes in the global environment, with an emphasis on changes in the last decade  *Fredrick Swenson*  Even before Donald Trump was elected president, there were swirling currents of change occurring in the international environment. Many of these changes were centered on the South China Sea and this region of the world continues to be a matter of grave concern to all; scholars. politicians, business people, and ordinary citizens. Some powers are rising and some are falling. China, despite close economic ties with the United States, Taiwan, Japan, and other nations in the reason, is seeking to establish a new-age Middle Kingdoms; a regional hegemony such as the United States has enjoyed in the Western Hemisphere since the early 20th century. In the light of these changes, questions are being asked that must be answered if the United States is going to continue prosper and be able to protect its people. The first and most important question is; what is the proper role of the U.S. in the current global environment? Should we continue to be The World’s Policeman? What does The World’s Policeman mean? Part 2: On the Benefits Accruing to Continuing Higher Education. Many people have decided to enter college for the first time or pursue a higher-level decree for many different reasons: 1. Increase their earnings potential. 2. Make connections inside and outside the academy that can open up more employment opportunities. 3. Learn how to think more critically and improve their communications skills. 4. To search for a new career or, unintentionally, discover one that appeals to them. 5. Learn that school can be fun as well as challenging. |

**Symposium 3, 2:00-3:00**

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| Room 006 - Chemical Engineering, Chemistry & Biochemistry |
| Resolving fluorescence lifetimes of conformational changes in  integrins using multifrequency flow cytometry  *Jesus Sambrano, Yelena Smagley, Alexandre Chigaev, Larry Sklar & Jessica Houston*  Flow cytometry is as a powerful statistical tool that assists scientists in acquiring specific attributes of a particle or cell. These attributes include but are not limited to size, morphology and total particle count. One limitation to conventional flow cytometry is the inability to directly resolve spectral overlap. In addition, resolving changes in the position of integrins (i.e., cell surface proteins) with conventional cytometry does not accurately identify the distribution of integrins in a given position. Herein, we resolve changes in integrin positions by acquiring time-resolved measurements in a high-throughput setting. More specifically, we use frequency-domain flow cytometry. This technique digitally modulates laser light at a given radio-frequency (RF); the modulated light of cells is captured to determine fluorescence lifetimes. The emission of the fluorescence signal is demodulated with an inherent delay due to the fluorescence decay time of the excited cellular molecule. The square-wave laser modulation allows us to resolve multiple phase delays when a reference excitation signal is captured from a laser. Our method for this study is to take human leukocytes that express specific integrins and study the integrins position using the square wave modulation approach. We take Forster Resonance Energy Transfer (FRET) measurements in which the donor fluorophore lifetime is measured. Evaluating integrin conformations may assist us with our comprehension of cancers and diseases with hemapoietic origins and advance progress with patient prognosis, cancer therapies and drug development. |
| Enhancing high throughput fluorescence lifetime measurement  in flow cytometry using digital frequency aliasing  *Kapil Nichani & Jessica P. Houston*  In flow cytometry, measurement of fluorescence lifetime provides high throughput and quantitative information about molecules within cells and its quantum kinetic environment based on fluorescence intensity decay times. Fluorescence lifetime measurements have proved to be useful for myriad applications such as the ability to resolve spectral overlap of emissions detected in the same channel and quantification of FÃ¶rster Resonance Energy Transfer (FRET). The ability to resolve lower lifetime values and picosecond differences in lifetime is critical for leveraging the utility of the lifetime parameter. Here we suggest a method using frequency aliasing for increased resolution in lifetime evaluation. Aliasing often is an undesirable consequence in signal processing and measures are taken to filter away aliased frequencies. We can take advantage of aliasing by extracting phase information from these frequencies to potentially improve the detection of small lifetime shifts. Other benefits include extending similar approaches to digital heterodyning. |
| Phase filtering to distinguish red fluorescence proteins  *Jianzhi Li*  Flow cytometry has been developed as a useful tool for cell sorting. However, the spectral overlap cannot be discriminated by intensity easily, so phase-filtered cell sorting (PFCS) will be used to filter overlapping fluorescent signals. Lifetime, or the average time fluorescence particles stay in an excited state, is different for variety fluorophores which have overlapped spectrum. By detecting lifetime, we can distinguish different fluorophores. In my research, iRFP670, iRFP682, iRFP702, iRFP713, and iRFP720 will be discriminated by a phase filtering as approach. At first, iRFPs will be excited by a modulated laser to collect fluorescence signal. The modulated fluorescence signal will be mixed with different phase reference signals, then the different signals can be discriminated. In this method, we do not need any complex acquisition system. Additionally our measurements are independent of effects that change the fluorescence intensity. In summary, phase filtering is a reliable method to distinguish spectral overlap. |
| GPER1 Expression is Modulated by D-glucose Concentration  in Estrogen-responsive Cancer and Tumor Cells  *Yan Zheng*  G protein-coupled estrogen receptor 1 (GPER1, aka GPR30), is a 7-transmembrane receptor that mediates rapid cell signaling events stimulated by 17ï¢-estradiol (E2) in cancer and tumor cells. GPER1 has also been shown to mediate antiproliferative cell signaling such as p53-dependent inhibition of cell cycle progression in breast cancer cells treated with the GPER1-specific agonist G1 and the inhibition of IGF-1R signaling in tamoxifen-treated breast cancer cells. The work presented here is aimed at determining the molecular mechanisms that regulate GPER1 expression. Previously reported findings show that GPER1 knock-out mice have impaired glucose tolerance and high circulating blood glucose levels suggesting that GPER1 is involved in glucose homeostasis. To determine if GPER1 expression is sensitive to D-glucose concentration in breast cancer cells, MCF-7 and T47D human breast cancer cells were cultured in media containing increasing concentrations of D-glucose and GPER1 expression was measured using real-time PCR and immunoblot. Data from these experiments showed that GPER1 expression was significantly increased in breast cancer cells cultured in media containing low D-glucose concentrations (0 and 2.5mM) and significantly reduced in media containing high D-glucose (25 mM). Since low D-glucose concentration is known to activate the energy-sensing AMP kinase (AMPK), the observed GPER1 induction in low D-glucose conditions was determined after pretreatment with the AMPK inhibitor compound C. GPER1 expression was inhibited in both MCF-7 and T47D breast cancer cells cultured in low D-glucose media when pretreated with compound C. Additionally, the AMPK activator metformin induced GPER1 expression in MCF-7 and T47D breast cancer cells cultured in high D-glucose (25mM) conditions. These data suggest that AMPK mediates GPER1 expression in cells cultured in low D-glucose. These findings reveal a previously unknown mechanism that regulates GPER1 expression. |

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| Room 018 – Education & Art |
| Development of an Assessment tool for Middle and High School STEM Extra-curricular Interventions  *Tony McClary*  Over the last several years there has been an increase in the demand for individuals to pursue careers in STEM and in kind there has been an increase in the number of STEM based extra-curricular interventions. There is not, as of yet, a definitive assessment to determine if the STEM programs being implemented across the country are serving to prepare young people for the pursuit of STEM degrees and eventually STEM careers. This is the purpose of this project, through the examination of literature, the implementation and examination of assessment tools and the use of a tracking database the researchers hope to answer the question, “What does it take to make a successful STEM student and what can STEM program coordinators do to help engineer such a student? |
| A Multimodalic Approach to Develop Expressive Language and Pragmatics in  Children with Autism Spectrum Disorder  *Trevor Harris*  A case study was performed on a school-age male diagnosed with Autism Spectrum Disorder (ASD), in which a hybrid speech therapy intervention was implemented, drawing from the fields of Applied Behavioral Analysis (ABA) and Music Therapy. The study was performed over the course of two months, in which the participant was seen for services twice a week for 50 minutes each session. The study followed a single-subject ABAB treatment design, in which a traditional speech therapy treatment and a hybrid intervention were delivered to the participant every two weeks in an alternating fashion. This was to observe any changes in the participant's performance between the traditional therapy approach and the hybrid therapy approach. The results of the study show a greater increase in the participant’s language and social abilities during the times when the hybrid intervention was implemented. |
| The SOAR Lab: Balancing Implementation With Evaluation for K-12 Outreach  *John Kulpa, Germain Degardin, Shubhasmita Pati, Luis Rangel, & Karen Trujillo*  The STEM Outreach Alliance Research (SOAR) Lab was established in fall, 2016 to broaden the research impact of the NMSU College of Education. A primary focus of the lab is supporting K-12 outreach programs. These programs, while delivering quality instruction and training in many disciplines to students and teachers across the state, are not typically equipped to adequately evaluate the impact of their work. The SOAR Lab helps to close this outreach-research gap by providing guidance with study design and purposeful data collection; quantitative, qualitative, and mixed-method data analysis; interpretation of results and recommendations for data-driven adjustments to the programs; and dissemination of these results and recommendations to wider audiences in the form of reports, publications, conference presentations, and grant applications. This talk will provide an overview of the lab’s work so far and demonstrate how we can collaborate with you to understand the impact of K-12 outreach at NMSU. |
| The Lichfield Gospels: Considering Utility and Appearance Throughout Time  *Haley Luster*  The pages of the Lichfield Gospels (ca. 730 CE) encompass much more than Christian scripture. This Insular illuminated manuscript is as an adaptable and dynamic object that has remained functional and relevant for over twelve-hundred years, having been used as a repository for recordkeeping, a symbol of divine and secular authority, a votive offering and a political bargaining chip, and finally as an object of academic interpretation and nationalistic esteem. This analysis ultimately seeks to identify how the physical appearance of the Lichfield manuscript relates to its utility throughout the centuries, consequently commenting on humankind’s practical and metaphysical reliance on creating and experiencing formalized artifice. |

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| Room 102 – Agricultural Economics & Animal and Range Science |
| Study on effect of socio-economic factors in livestock production;  A case from Chitwan and Dolakha district of Nepal.  *Apar G C. & Namdev Upadyay*  Livestock is not only an important source of food and income, but also the sign of assets in rural areas for poor people. In order to estimate how social-economic factors influence livestock production and income with the help of empirical model, the data were collected form 125 household samples selected from 4 villages of 6 localities in Chitwan and Dolakha District of Nepal. The result found that education of household head, age of household head and family have significantly influenced the total livestock standard unit and income trend in the study area. Furthermore, social factors (gender, age, education level and off-farm activities of household head; family labor, family size and number of children) have been confirmed to influence livestock production or income at different levels. In addition, the education of Household head also significantly influences the total operational land holdings. Finally, based on the results of this study, it is strongly suggested that concerned agencies and stakeholders should look socio economic factors in rural Nepal to have clear strategies and good policies for livestock production system development. |
| Use of the Global Land-Potential Knowledge System for planning and  evaluation of rangeland restoration projects  *David Kimiti, Jeffrey E Herrick, Amy C Ganguli, Jason Karl, & Derek W Bailey*  Lack of monitoring and reporting of rangeland restoration outcomes often hampers efforts to improve, replicate, and upscale effective restoration practices to other affected areas. The Global Land-Potential Knowledge System (LandPKS) aims to support these efforts by providing tools for land managers to inventory their resources and monitor and evaluate project outcomes. We highlight current and potential applications of the LandPKS mobile application suite, including LandInfo and LandCover. LandInfo is a site characterization tool that is currently used in over 10 countries for collecting basic soil and topographic information necessary to determine site potential and identify ecological sites. LandCover is a tool for collecting soil and vegetation cover data that facilitates monitoring changes in plant community composition. LandPKS provides tools for monitoring and evaluating restoration projects and seeks to provide a framework for collecting, storing, and sharing local knowledge and scientific data necessary for informing management and policy. |
| Are dog owners able to correctly identify primary and secondary  emotions in their canine companions based on dog vocalization and body language?  *Christabel Castro, Gaylene Fasenko, Micheal C. Hout, & Claren Wilson*  Many dog owners report observing both primary (e.g., anger) and secondary (e.g., empathy) emotions in their dogs. Since canines communicate non-verbally, owners can only interpret what their dog might be feeling based on the dog’s vocalizations and/or body languages. The objectives of this study were to determine: 1) the frequency with which owners observed primary and secondary emotions in their dogs, and 2) if the emotions the owner identified were accurately categorized based on vocalizations and/or body languages exhibited by the dog. Dog owners (n=651) completed a 74 question online survey. Owners viewed primary (60%) versus secondary emotions (40%) more frequently. Even for primary emotions, the ability of dog owners to recognize their dog’s emotion based on expected vocalization(s) and/or body language(s) was low (65% or lower). The results suggest that dog owners are not fully cognizant of the vocalizations and/or body languages associated with specific emotions in their dog. Through better understanding of dog non-verbal communication, owner education can be improved, thus strengthening the canine-owner bond. |
| Potentially Mineralizable Carbon under different cover crop residue quality and quantity.  *Binod Ghimire, Rajan Ghimire, Abdel Mesbah, & Dawn VanLeeuwen*  Cover crops (CC) may benefit cropping systems by increasing soil organic matter and improving nutrient cycling as well as soil water conservation. We evaluated the effects of CC quality and quantity in a soil carbon mineralization potentials. A laboratory incubation study was established to study soil carbon mineralization under different rates (0 Mg ha-1, 5 Mg ha-1 and 10 Mg ha-1) of cover crop (pea, canola, and oat) residues including fallow (no CC). Carbon mineralization was significantly higher with higher rate of cover crop residues. Cumulative CO2 was significantly lower in oat compared to pea and canola when no residues were added but no significant difference was observed at 5Mg/ha and 10 Mg/ha CC residues. Oat residues had slow soil carbon mineralization compared to pea and canola. Cover crop residue quality and quantity effects the soil carbon mineralization rate and potentially mineralizable carbon. |

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| Room 106 – Various Disciplines | |
| Generating Summarization through Unigram-Bigram  Multi-Words Extraction  *Nesreen Alsharman & Inna Pivikina*  This research describes a new method for generating summarizations directly via unigram-bigram multi-word Extraction technique. The methodology of this research uses a linguistic method because it is based on extracting significant unigram-bigram multi-words that are dependent upon rule based part of speech tagging from a set of sentences. The resultant multi-words along with other features are used to build a final summary. The proposed method does not require full Part of Speech tagging (PoS) since unigrambigram multi-words extraction technique does not require advanced categories of words such as prepositions, articles, adverbs, and others. Instead, the method only needs noun, verb, and adjective categories. The proposed method is tested on the problem domains of citation summarization extraction, and Opinosis Data sets. Results show that the proposed method performs better than Text-Rank, Lex-Rank, and Edmundson summarization methods. The proposed method is general enough to summarize texts from any domain. Performance analysis of piezomagnetoelastic energy harvesting systems. | Computer Science |
| Relationship between Time Management in Courses  with Online Interactive Textbooks and Students' Performance  *Khaznah Alshammari & Inna Pivkina*  Our study goal is to explore the relationship between time management in courses with online interactive textbooks and students' performance. The study was done in two computer science courses - a second-year course on discrete mathematics for computer science and a first-year programming course. Each course used a required online interactive textbook on the course topic which had animations and interactive participation activities for students incorporated in the text. The textbooks provide tools for the instructor to download student activity reports. The reports allow determining the time when activities from each section of the textbook were completed by each student. We use the reports to find out for each student whether they have a tendency to do the assigned textbook participation activities early or late. We study whether this tendency affects students' academic performance during the semester. In discrete mathematics course, students were asked to read sections from the textbook on a specific topic and to do all participation activities from these sections before the topic was discussed in class. the questions on the material were addressed in class and students worked in groups applying what they learned. After that, the students were asked to do paper homework assignments and programming assignments on the topic. We compared students' homework grades, programming assignments grades, and overall course grades. We found that students who tend to do their reading assignments early performed statically significantly better than students who tend to do their reading assignments late. In the programming course, students were asked to do reading assignments after the material was presented in class. In this course there was no statistically significant difference in grades between students who had a tendency to do the reading assignments early and students who had a tendency to do them late. | Computer Science |
| You can increase consumer engagement and self-referencing on social networking sites  *Ryan Cruz & James M. Leonhardt*  In the current research, we focus our efforts on text analysis of social media data. Two experiments compared self-referencing appeals through the absence and presence of second-person “you” pronouns on brand engagement outcomes. We employ a text analysis on Facebook brand posts and find evidence that second-person “you” pronouns lead to higher brand post engagement (likes, comments, and shares). In study 2, an experiment finds that posts which feature second-person pronouns result in higher levels of self-referencing resulting in increased consumer involvement. | Marketing |
| Introduced American Bullfrog distribution and diets in  Grand Teton National Park  *Lauren Flynn, Adam Sepulveda & Tess Kreofsky*  Introduced American Bullfrogs (Lithobates catesbeianus) have been present in Grand Teton National Park since approximately the 1950s, but little is known about their distribution and potential impacts. In this study, we surveyed the current bullfrog distribution and spatial overlap with sympatric native amphibians in the park, and characterized post-metamorphic bullfrog diets from July, September 2015. Despite surveys in multiple large rivers and floodplain habitats, we only documented bullfrogs in a geothermal pond and 5 km of stream channel immediately downstream of this pond. In these waters, bullfrogs overlapped with native amphibians at the downstream end of their distribution, and we did not document native amphibians in bullfrog stomach contents. Larger bullfrogs (SVL â‰¥ 96 mm) primarily consumed native rodents (especially meadow voles, Microtus pennsylvanicus), while smaller bullfrogs frequently consumed native invertebrates and less frequently consumed non-native invertebrates and fish. Taken together, these data indicate that the distribution and implications of the bullfrog invasion in Grand Teton National Park are currently localized to a small area, so these bullfrogs should therefore be vulnerable to eradication. | Fish, Wildlife, & Conservation Ecology |

**Symposium 4, 3:00-4:00**

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| Room 006 - Psychology |
| No Evidence for a Bilingual Advantage in Switch Costs  *Hunter Myuz, Kenneth R. Paap, Regina T. Anders,*  *Morgan F. Bockelman, Roman Mikulinsky & Oliver M. Sawi*  Participants completed three cued-switching tasks, responded to two category-fluency probes, two letter-fluency probes, and two probes to alternate between two targets. Correlations across the three cued-switching tasks were significant for both switching costs and mixing costs. The bilingual advantage hypothesis was tested both by forming language groups and treating bilingualism as a continuous variable. No bilingual advantages were observed. In verbal-fluency monolinguals generated more correct responses but the bilingual disadvantage on the category task was not reduced in the letter-fluency scores. The bilingual disadvantage was eliminated when the groups were matched on vocabulary size. The verbal-fluency measures obtained when participants alternated between targets weakly correlated with the switching-costs obtained in the cued-switching tasks. |
| Transitioning, the Ultimate Gender Norm Violation?  Perceptions towards Transgender Individuals  *Tamara Stimatze & Yuliana Zaikman*  Previous research has suggested that attitudes toward people who identify as transgender are influenced by the social construction of gender (e.g. gender norms). We hypothesized that: (1) Transgender targets will be evaluated more negatively than non-transgender targets on the perceptions and behavioral intentions scales; (2) Male norm roles endorsement will significantly predict perceptions and behavioral intentions toward transgender targets; (3) Target gender identity (transgender, control), target sex (male, female), and target’s gendered behavior (masculine, feminine) will predict attitudes toward transgender targets. We ran two multiple regressions applying target sex, target gender identity, target’s gender role, participants’ scores on the MRNI-R and GTS scales as predictor variables. We found that the target’s gender identity, t(1,177) = -2.688, p = 0.0079, target’s gender role, t(1, 177) = -3.969, p = 0.0001 , participants’ MRNI-R scores, t(1, 177) = -2.363, p = 0.019, and participants’ GTS scores, t(1, 177) = -2.452, p = 0.0152, significantly predicted perceptions scale responses. Additionally, gender identity of targets t(1, 177) = -2.526, p = 0.0123 and participant’s GTS scores t(1, 177) = -4.810, p &lt; 0.0001, significantly predicted behavioral intentions scale response. Transgender targets were evaluated more negatively than non-transgender targets, providing support for H1. As endorsement of male role norms increase, perceptions and behavioral intentions toward targets decreases, providing support for H2. Finally, H3 was partially supported as gender identity, gender roles, endorsement of male role norms, and transphobia significantly predicted perceptions toward targets. The implications of these results suggest that interventions designed to improve attitudes, perceptions, and behavioral intentions toward transgender individuals must address an individual’s beliefs and attitudes regarding the social construction of gender within society. |
| Examining the sexual double standard in the real world:  Evaluations of friends vs. acquaintances based on sexual history  *Tara M. Young, Michael J. Marks, Yuliana Zaikman, & Jacqueline A. Zeiber*  This study examined the sexual double standard (the phenomenon by which men and women are evaluated differently for the same sexual acts; Marks & Fraley, 2005; Reiss, 1967) in a real world setting by having people think of and evaluate people from their everyday lives on a variety of characteristics including values, likability, intelligence, and successfulness. Many previous double standard studies focus on hypothetical vignette data. We examine the effect of closeness of social relationships on the SDS by assessing how individuals evaluate their own friends versus acquaintances as social relationships may change how others are perceived. Although we did not find an effect of relationship type, our results indicated the sexual double standard does exist in the real world such that women with higher numbers of sexual partners were rated more negatively than women with lower numbers of sexual partners. There were no differences in evaluations of men based on number of sexual partners. |
| Strength in Numbers: Testing the Fidelity of Multidimensional  Scaling for Large Datasets  *Arryn Robbins & Michael Hout*  Multidimensional scaling (MDS) is a statistical technique used to model the psychological similarity among stimuli. In a set of simulations, we tested the fidelity of MDS to quantify the similarity of large stimulus sets (i.e. up to 1000 items), as this technique is more commonly used with smaller sets (e.g., 30 items). Hypothetical MDS spaces were created, along with error-perturbed data from simulated participants. We examined the degree to which spaces resulting from our participants captured the organization of the true spaces. The higher set sizes decreased model fit (i.e., they produced increased stress) but increased the determinacy (i.e., the extent to which the model recovered the true organization) of the MDS spaces. When the data were scaled using the appropriate number of dimensions, the results were consistent across different MDS scaling algorithms, and across thousands of simulated iterations (but determinacy deteriorated with incorrect estimation of dimensionality). We argue that it is not only reasonable to adopt large stimulus set sizes when using MDS, but it is advantageous to do so. |

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| Room 018 - Education & Counseling |
| Expelling the model minority myth: A case study examining the  leadership practices in a southwest borderland High School  *Jennifer M. Haan*  Although previous literature review provided evidence that supports the harmful effects of the model minority myth with regard to closing a racialized achievement gap, few studies have explored how leaders in a secondary school setting explain the existence of a racialized achievement gap between Asian American and White students on the one hand and other students of color on the other. Thus, the purpose of this study was to examine to what extent, if at all, the model minority myth influences the leadership practices of high school administrators as they work to close the achievement gap between racial subgroups of students in a southwest borderland high school. The results of this study revealed that high school leaders are influenced by the model minority myth, as well as other myths about the academic achievement of students of color. This study has implications for both policy and practice in addressing the unique needs of Asian American students and the needs of other students of color, including African American, Latina/o, Native American and Pacific Islander students. Moreover, this study outlines specific recommendations for educational leaders which include, reframing academic intervention models, creating channels to hear student voice, strengthening leadership develop programs at the district level and strengthening leadership preparation programs at the university level. |
| Women and the superintendency; Breaking the glass ceiling  *LeAnne Salazar*  This research highlights an auto ethnographic study, backed by several peer-reviewed studies. This research study examines current issues affecting educational administrators using the qualitative narrative methodology known as auto ethnography. Auto ethnographic writing links the personal to the cultural and is recognized as a research methodology which utilizes personal narratives to challenge previous theories based on his or hers lived experience. This research is intended to serve as a springboard for future research and to improve current educational practices. Although auto ethnography is not a preferred research methodology within education its value and the perception of other researchers is gaining wider acceptance. This paper uses auto ethnography to investigate and relate a personal encounter and compare it to the most recent research relating to educational leadership from a social context. The heart of this study examines the challenges women face in educational leadership positions. |
| El Poder de Familias: Creando Espacios de Alfabetizacion  Familiar con y para las Familias / The Power of Families:  Creating Welcoming Family Literacy Spaces with and for Families  *Gloria M. Calderon Garcia*  This Action Research study (Cochran-Smith & Lytle, 2009; Herr & Anderson, 2014) illuminates the collaboration of teachers in an elementary school in Mexico for designing Home Reading Projects. The purpose was to improve the reading skills of second-grade students by involving families. Studies show that teachers can strengthen their instructional effectiveness when they involve families in their children’s education (Chen, Kyle, & McIntyre, 2008; Delgado-Gaitan, 2001). The researcher conducted two iterations, as a participant observer (Spradley, 1980) first with teachers, and then with teachers and families. In the first project teachers invited parents to support their child at home by listening them read daily and then asking them to explain their understanding (Rasinski, 2003). In addition, parents filled out a Reading Log. After four weeks, several parents complained because they did not have time to complete the project. In the second project teachers considered the parent-feedback and conceptualized a new reading project. The teacher motivated her second graders to improve their reading skills by describing how she learned to read. She asked her students to choose a book that they would like to learn to read to surprise their parents. Then, children shared their reading with their parents and they showed a new attitude because their child could read. Data sources include: teaching journal, field notes, and interviews. Preliminary findings suggest the importance of working collaboratively with parents in conceptualizing and designing family literacy projects, improving models to include the community cultural wealth (Yosso, 2005) of families, and providing students and parents with input into the types of texts and literacy activities included in projects. |
| Escuchame porque Tengo Voz: The Testimonios of Latino Male  Adolescents in Group Therapy at a Southwest Secondary School  *Alejandro Cervantes & Ivelisse Torres Fernandez*  Latino Male Adolescents engaging in group work as a psychotherapeutic treatment modality may be culturally and emotionally compelling (Millan and Chan, 1991). However, the dearth of research capturing the experiences of Latino Male Adolescents participating in group therapy warrants more application of this treatment modality. Also, group interventions researched and studied with this population have been limited (Malott and Paone, 2013). Such interventions, such as cuento (storytelling) therapy, play therapy, educational instruction, structured discussions, and creative crafts and writings have reported benefiting the well-being of Latinx youth (Malott and Paone, 2013). Interventions focusing on advocacy and social justice tactics have rarely informed the field of counseling psychology. Testimonios are a "verbal journey of a witness who speaks to reveal the racial, class, gendered, and nativist injustices that they have suffered as a means of healing, empowerment, and advocacy for a humane present and future" (PÃrez Huber, 2009, p. 644). Testimonios belong in the therapeutic process, especially among Latino Male Adolescents, as it can be a socially therapeutic act (Aron, 1992). Using a qualitative methodology, this study hopes to answer the following research question: How do testimonios capture the shared experience of Latino Male Adolescents in group therapy? This study will use a qualitative design, idiographic and the approach adopted will be Interpretative Phenomenological Analysis (IPA) (Smith & Osborn, 2003). The study will examine the efficacious of testimonios as a self-exploration, advocacy, and social justice tool for Latino Male Adolescents participating in group therapy. The implications of the findings will inform the counseling psychology field by understanding the participant’s experiences during group therapy while knowing the meaning Latino Male Adolescents found in participating in Testimonio work. |

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| Room 102 –  Industrial Engineering & Mechanical and Aerospace Engineering |
| Effect of Manufacturing Process on Mechanical Properties of wood plastic composites  *Juan M. Diaz-Mendoza, Delia J. Valles-Rosales, Elias H. Arias-Nava, & Luis A.*  Mechanical properties of wood plastic composites are important for different applications such as, construction, automotive, aerospace and others. Mechanical components such as gears performs based on the mechanical characteristics of the material. The mechanical characteristics of tensile strength, flexural strength and elastic modulus in wood plastic composites are dependent on the composition. However, the manufacturing process (injection molding, extrusion and additive manufacturing) has been identified that also affects the mechanical properties. |
| Low-Cost High-Endurance Solar Powered Unmanned Aerial Vehicle  *Jesus Rosales Rosales, Liana Gutierrez, Andrew Rodriquez & Andreas Gross*  A solar-powered unmanned aerial vehicle (UAV) with 12ft wingspan has been designed and is presently being built. The project is ideally suited for educating undergraduate aerospace engineering students in aircraft design, manufacturing, and basic electrical engineering. Important design drivers were the use of low-cost commercial off-the-shelf components and manufacturing techniques that are appropriate for undergraduate students. The design objective was to obtain a light-weight but structurally sound aircraft that can cruise solely on solar power during day time and carry a 5lb payload. To confirm the viability of the design, a battery-powered half-scale model was built. The handling characteristics of the half-scale were found to be satisfactory with respect to stability and control. |
| Design, aerodynamic analysis, and stability of tilt rotor micro air vehicle  *Ryan Salazar, Mostafa Hassanalian, & Abdessattar Abdelkefi*  The conceptual design and optimization of a tilt-rotor micro air vehicle (MAV) for a well-defined mission are performed. The objective of this design cycle is to decrease the design time in order to efficiently create a functioning tilt-rotor drone. A flight mission is first defined for a tilt-rotor MAV performing hovering and cruise flight scenarios. Second, a complex wing shape is chosen and modeled in order to determine the final shape. The initial shape is scaled in order to acquire an arbitrary wingspan of one meter. For the specific area and wingspan, the aspect ratio of the designed wing shape is found to be equal to 2.32. Third, a constraint analysis of the MAV is performed by using a Newtonian free body analysis for six different flight scenarios. This analysis yields the required power loading and wing loading. Fourth, the weight of the vehicle is estimated using both statistical and computational methods. After estimating the total weight and the wing loading of the MAV, the surface of the wing is determined, yielding the final wingspan of 0.76m. Subsequently, considering the total weight of the designed MAV, the needed lift coefficient is determined. Fifth, using the lift coefficient in conjunction with XLFR5, a batch of airfoils is selected and analyzed to evaluate the aerodynamic coefficients of the wing with each airfoil. This analysis ultimately leads to the optimum airfoil being selected. Finally, design of the fuselage and tail, internal components selection, and servo-mechanisms design is carried out prior to the stability analysis. All these proposed steps are needed to design efficient and functioning tilt-rotor MAV. |
| Characteristics and control of base-excited dynamical system through  a vibration absorber energy harvester  *Hichem Abdelmoula & Dr. Abdessattar Abdelkefi*  The spring-mass absorber usually offers a good control to dynamical systems under base excitations for a specific value of frequency. As the vibrational energy of system is transferred to the absorber, it gets dissipation. In the present study, this energy is no longer dissipated but converted to useful electrical energy. A new design of a piezoelectric beam installed inside an elastically-mounted dynamical system (primary structure) undergoing base excitations is considered. An analytical model for the coupled system is constructed using the Eulerâ€“Lagrange principle and the Galerkin discretization. The analytical expressions of the displacement of the primary structure, tip deflection of the energy harvesting absorber, and generated voltage across the electrical load resistance are obtained through a closed-form solution procedure. It is demonstrated that the energy harvesting system can be effectively used as an absorber by reducing or suppressing the resonant amplitudes of the primary structures. Simultaneously, broadband resonant regions for the harvested power are obtained which indicate the effectiveness of using a piezoelectric energy harvesting system as an absorber. This analysis shows the importance of using energy harvesting absorber and offers a radiation to other studies in which other transduction mechanisms can be used with determining the optimum dimensions of the energy harvesting absorber system. |

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| Room 106 – Molecular Biology, Plant and Environmental Sciences, Family & Consumer Sciences |
| Stress-induced carotenoid production in algae via indole alkaloid gramine  *Michael Canton , F. Omar Holguin, & Wiebke J. Boeing*  Algae are useful for producing medically valuable compounds such as carotenoids. Here, preliminary research is conducted using an indole alkaloid allelochemical (gramine) to better understand its suitability as a desirable abiotic stressor, akin to how nutrient stress can increase algae lipid content. However, data evaluating gramine’s effect on algal growth and algal gramine uptake are lacking. Growth of green algae Chlorella sorokiniana and Coelastrella sp. were measured by optical density daily and gramine concentration via high performance liquid chromatography (HPLC) over 16 days. Gramine is an effective algaecide for 2-3 days, after which most algae cultures started to recover, possibly due to gramine degradation or algae adaptation. HPLC results show that only treatments containing algae undergo significant gramine removal from water, suggesting a biological removal mechanism. Future research shall include screening these and other algal species for medically valuable compounds before and after gramine stress. |
| Overexpression of genes for key enzymes in carbon (C) and nitrogen (N) metabolism improves performance of transgenic alfalfa plants  *Harmanpreet Kaur, Jose L. Ortega, Champa Gopalan, & Suman Bagga*  Plant growth is determined by the ability of plants to utilize C and N. A key enzyme in N metabolism, glutamine synthetase (GS) converts N to an organic form. Sucrose phosphate synthase (SPS) is the key enzyme in the synthesis of sucrose in photosynthetic organs. Alfalfa forms a symbiotic relationship with N2-fixing bacteria to form the root nodule. The bacteria housed in the root nodule fixes atmospheric nitrogen for plants to use while the sucrose produced by the photosynthetic tissues, provides energy required for nitrogen fixation and N assimilation by GS. The goal of this study is to compare two classes of nodulated alfalfa plants (transgenic plants) - SPS overexpressors and GS overexpressors. Both classes showed improved performance compared to control plants suggesting that the two enzymes are individually limited for maximal growth. The characterization of these plants will allow us to test the interrelationship between C and N metabolism. |
| Cell cycle-dependent localization of EGFP-p27 fusion protein  determined by the time resolved flow cytometer  *Faisal Alturkistany, Ali V. Gohar, Wenyan Li, Jessica P. Houston, & Kevin D. Houston*  Identification of protein location, which is tied to function, is statistically valid when large population of cells are screened in a rapid fashion. We propose a way to screen location by measuring the fluorescence lifetime of the green fluorescent protein (GFP)-fused to the protein of interest. Since the fluorescence lifetime is dependent on many factors of the surrounding microenvironment such as pH level, temperature, and refractive index, we believe that the fluorescence lifetime changes based on the subcellular location. In this study, we are measuring the fluorescence lifetime of the enhanced green fluorescent protein (EGFP) conjugated to the cyclin dependent kinase inhibitor (CDKN1B) or p27 using phase-sensitive flow cytometer. P27 is localized in the cytoplasm or in the nucleus depending on the cell cycle phase. However, the cytoplasmic miss-localization of p27, occurs due to constitutive activation of MAPK and PI3K-AKT, signaling is involved in carcinogenesis of many human tumors. |
| Protein extraction from glandless cottonseed meal (GCSM) as a functional food ingredient  *Luisa Valverde-Quiroz, Nancy Flores, Efren Delgado, Delia Valles-Rosales, & Jesus De la Cruz*  The world supply of protein is derived from either plant or animal sources. Plants provide 65% of total amount in global protein production and animal products contribute 35% of per capita availability of food protein. In the food industry, proteins from seeds possess desirable functional properties and provide essential amino acids in food systems. The seeds most frequently used are soybean, pea, sunflower and some cereals, due to their nutritional value and their functional properties, such as emulsification, solubility, foaming properties, and water and oil absorption capacities. New protein sources from seeds have been reported as potential ingredients in certain food applications and promise new alternatives in the food industry. Cottonseed meal is by-product after lint fiber is ginned. Once seeds are separated from hull plant, these are crushed and the oil is extracted. Cottonseed meal is mainly used to feed animals in the countries where cotton oil is produced. However, the cottonseed meal can be fed only to adult animal ruminants because it contains a compound called gossypol. Gossypol is highly toxic to monogastrics because affects enzymatic reactions for many biological processes, as well the ability of cells to respond to oxidative stress and inhibition of oxygen from hemoglobin. Gossypol is found in the cotton plant and it is concentrated in the seed. A natural cotton selection with low gossypol content was used in this research. The objectives of this study were determined the effect of pH and temperature on glandless cottonseed protein extraction. Glandless cottonseed protein for human consumption is possible to several factors including abundance, desirable texture, and good nutritional properties in food. Finally, to optimize a protein extraction process from glandless cottonseed meal would have potential applications in food industry: this could improve quality in foods and developed a new product. |

**Symposium 5, 4:00-5:00**

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| Room 006 – Anthropology |
| Social Memory at Xnoha, Belize  *Alyssa Davis*  From the ancient Maya archaeological site of Xnoha, Belize, this research applies the theory of social memory to the construction and deliberate termination of architectural features in Patio Group 78 between the Late Preclassic and Classic periods. The discussion will begin by defining "social memory" and "communities of memory", followed by a brief overview of Xnoha and Patio Group 78 excavations by the Maya Research Program. This presentation will then explore the multifaceted ways in which the ancient Maya occupants of Patio 78 constructed social memory through their activities, architecture and commemorative deposits, and finally, how they were able to ensure the perpetuation of their shared social memory over generations. |
| Weapons of a Spanish Colonial Road: An Analysis of Arms Found at Paraje San Diego, New Mexico  *Paul Van Wandelen*  The Camino Real de Tierra Adentro served as the main conduit of transportation in New Mexico from 1598 until the 1880s, with continued regional use afterwards. Situated in strategic locations along this road were stopping points, called parajes, which travelers used to rest. Parajes are usually described as campsites in literature and less attention is given to the other activities that occurred at these sites. In recent reanalysis of collections from Paraje San Diego, a historical paraje near Las Cruces, New Mexico, a significant number of arms and ammunition have been found ranging from lithics to modern firearms. The notable presence of such materials indicates some of the activities which occurred at these sites. As stopping points along lengthy, well-used roads, these sites were home to food gathering, violence, and target practice, among other uses. This paper will present an analysis of the arms found at Paraje San Diego and discuss when, how, and possibly why they were used by travelers using the paraje. Understanding the wide variety of roles these arms served to travelers on the Camino Real will lead to a better understanding of both paraje sites and their uses, as well as travel along the road. |
| Qualitative Exploration of the Education of Nurses Regarding Midwifery and Maternity Care  *Karmon Kuhn*  In order to understand more about how to successfully integrate multidisciplinary teams of maternal healthcare professionals, I investigated the impressions of future obstetric care providers (nurses specifically) regarding midwives as alternative care providers in the U.S.-Mexico borderland. The methods include in-depth interviews of thirteen students from a southwestern school of nursing with questions pertaining to contemporary attitudes of Licensed Midwives (LMs). They also included six Lamaze Class observations to investigate the role of education in forming or refuting these impressions. Additionally, I interviewed three professionals currently working within maternal health to learn more about how well recently graduated nurses collaborate. |
| Native American Culinary Traditions and Practices: Negotiating Foodways, Identity, and Culture  *Jacquelyn Heuer*  Historically, indigenous populations have struggled to maintain food sovereignty. As a result, there have been small pockets of resistance within communities. More recently, indigenous chefs have joined in the movement, with the aim of increasing awareness about traditional foods, not only within their own communities, but also within the general population. However, the motivations that urge chefs to focus on the revitalization of traditional foodways varies. This paper explores the origins of the motivations for chefs, analyzing the perceptions that Native American culinary students and professional chefs have of traditional foods. |

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| Room 102 – Engineering |
| Software Analysis and Simulation of Injection Molding to Prevent Warpage and Shrinkage in Wood Plastic Composites Using Pecan Shell  *Victor Hugo Cruz Macias, Delia Valles-Rosales, & Young Park*  Wood Plastic Composites (WPC) are leading the edge on bioplastics. WPC consist of wood fibers embedded in a petrochemical matrix, increasing stability and stiffness of composite materials compared to pure plastics. WPC has a variety of applications, from gardening to construction and automotive industry. The principal objective of this research is the analysis of a mixture of polymer, such as Poly Lactic Acid, Polypropylene, or Polyethylene, with a filler of pecan shell, and a coupling agent such as Maleic. The focus point is to predict and avoid the warpage or shrinkage of the final product. Some of the methods to analyze this product are the flow simulation of the WPC during the injection process, by using a simulation software, and research how the material will behave under temperature changes. The results of this research are expected to have a big impact on sustainability. |
| Slaughtering Process and Water Consumption Analysis and Optimization of an Organic Slaughterhouse Facility  *Maria Solano, Dino A Ochoa, Delia Valles-Rosales & Efren Delgado*  In our time, the demand of organic products is rapidly increasing, especially meat. This project focuses on analyzing the current processes that take place at an organic Slaughter house facility located in Fort Hancock, TX. The facility produces lamb and goat organic meat, and operates three main areas: slaughtering, processing and cooking. The main problem of focus is the current production of the facility and water utilization. Process standardization, time studies, costbenefit analysis and statistical analysis, such as One Way Analysis of Variance and standard t-test, of the slaughtering area are some of the methodologies applied in this research. Once the process and production schedules are analyzed, the main objective is to optimize the process in order to reduce production costs, thus increase profit of the company while complying with USDA standards. A second aspect of the research is to find ways to optimize water utilization of the facility and reduce water waste during each process. Overall, optimized processes and productivity, higher efficiency, and improved water utilization are preliminary outcomes from this research providing a significant reduction in overall costs of the facility. |
| Mechanics of Nanomaterials  *Mohamed Ibrahim, M. Shaat & A. Abdelkefi*  Mechanics of materials has been establish to investigate materials behaviors. Unlike conventional materials, nanomaterials have shown unique properties and unusual behaviors in various applications. For these reasons, the classical mechanics of materials has shown a clear failure when applied for nanomaterials. Therefore, developing the mechanics of nanomaterials as a new field of science is a crucial need.  In this presentation, the fundamentals of mechanics of nanomaterials in terms of theory, materials characterization, and applications are discussed. In addition, the essential models, theories, and methodologies which are needed to accurately model the mechanics of nanomaterials including nanostructured materials and single crystalline nanomaterials are presented. |
| Measuring energy savings on cities with rebate programs for cool roofs application in the U.S.  *Jose Murguia, Delia Valles & Sarada Kuravi*  Cool roofs are those roofs with a high solar reflectance and high thermal emittance. According to the US Department of Energy, a standard roof can get temperatures as high as 150 Â°F during summer peak sun hours. Under the same temperature and conditions, a cool roof may stay 50 Â°F cooler, while saving energy and money by a decrease on the air conditioning usage. Also, cool roofs may help to combat the heat island effect, by decreasing the temperature of the air. Cool-roofs have being widely adopted in the United States through programs such as ASHRAE 90.1, ASHRAE 90.2 and California Title 24 Standards. This research aimed to estimate energy savings on different locations across the U.S. where rebate programs are available. Results include simulations with different reflectance values and locations. Conclusions may be draw to encourage the use of cool roofs on areas with the highest cost-benefit potential. |

**Symposium 6, 5:00-6:00**

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| Room 006 - Anthropology |
| Traditional Ecological Knowledge and Biodiversity in Yaxhachen, Yucatan, Mexico.  *Janine Boyers*  This research project will focus on the variability of Traditional Ecological Knowledge among households within the rural agricultural community of Yaxhachen, Yucatan, Mexico through an analysis of 5 homegardens and their caretakers. The variability of knowledge will be examined through the free-listing of plants within the homegarden, semi-structured interviews, a focus group, and participant observation. This project will be undertaken with the guidance and consent of Millsap’s College Kaxil Kiuic Biocultural reserve. The mission of Kaxil Kiuic Biocultural Reserve is to conserve the environment and cultural heritage of the Puuc Region of Yucatan where Yaxhachen is located, through education, research, and community building. This project which will be conducted in the summer of 2017, aspires to add to the preservation of both biological and cultural elements within Yaxhachen through the documentation of Traditional Ecological Knowledge in the area using a theoretical framework based Virginia Nazarea’s Memory Banking. |
| Votive Offerings and Retablitos: Transitions in Expressions  of Popular Catholicism in 19th Century  *David Morales Andrade*  The collection of Retablos of the Art Gallery at New Mexico State University has an excellent collection of retablos and pictorial exvotos from the nineteenth and twentieth centuries. Therefore, this proposal seeks to understand through the exvotos of this collection their wealth as a source for the research of everyday life and popular religiosity, that ordinary people used to do in gratitude for a miracle received, and analyze how this manifestation emerged as a cultural-religious practice of the marginalized social classes during the 19th century. |
| The History, Heritage and Native Culture of Alaska:  An Internship Research Study of Ownership and Representation at the Anchorage Museum  *Hailey Jung*  The relationship between museum institutions and Native American communities has been challenging and ever-changing as Indigenous identity representation through museum research and exhibition has historically aligned with colonial values of authoritative knowledge. Due to significant collecting efforts, many non-Native owned or operated institutions have accumulated immense collections of Native materials. However, a shift is appearing as Native peoples are reclaiming their rights to ownership and representation of their own culture. The Anchorage Museum is an ideal example of a new intersection of collaborative work between Native communities and museums. This internship research study will explore the many aspects of museum operation and how those practices work in collaboration with Native Alaskan communities, artists and individuals seeking to claim ownership of cultural knowledge and to be a primary voice in cultural representation. |

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| Room 018 - Education |
| Let’s Write Together! Bilingual Students in Participatory Action Research Pedagogies  *Johanna Esquivel*  This presentation explores how participatory action research (PAR) pedagogies are used in a bilingual classroom to improve fourth and fifth grade students’ writing skills in English and Spanish. PAR is a type of research that focuses on experiential methodology while helping people become conscious of their power and praxis to transform their realities (Fals-Borda & Rahman, 1991). Thus, PAR pedagogies are human activities (Sanchez-Vazquez, 1977) that encourage students to act and transform their realities (Freire, 1982) by exploring their language ecologies (Haugen, 1972) and literacies (Gee, 2008). As a pedagogical continuum and paradigm, teachers can use PAR to guide their English-Spanish bilingual students to situate and contextualize their writing processes, identities, discourses, and vivencias. To improve the writing skills needed across academic subjects, the students participated in collaborative classroom activities such as writing poems and narratives, drawing in groups, and making student treasure books. These activities would be shared. |
| Using Pre-Developmental Preschool Methods With All Students  to Allow Children More Access to the Curriculum  *Maria Elena Salazar*  Pre-developmental preschools use multisensory experiences that allow children to interact socially, physically, and academically, and put them on upward trajectories for future success. This presentation will introduce participants to kinesthetic, cross-curricular activities beneficial to all students, thus promoting inclusion, with instructional strategies often relegated to the pull-out classroom for the identified student. |
| Erosion of Trust in Law Enforcement: A Spotlight on the African American Community  *Carolyn Raynor & Ezau Rios*  To understand how trust in law enforcement has eroded among the African-American community, we must examine the historical effect of policing and slavery. Today’s social reality of police work has been inherited from the past. Because of disproportionate policing, African Americans have negative perceptions and experiences with police, are cynical of the legal system, and are prosecuted at higher rates than whites. Sometimes, subordinate groups cannot find the language to oppose oppression. They are banned from voicing opposition by economic and political constraints. Thus, they can act in ways that work against their own interests, becoming accomplices in their subordination. African Americans living in disadvantaged communities today are faced with reduced employment and educational opportunities, increased levels of poverty, continuing discrimination, and persistent police brutality. These hardships have created a pervasive lack of trust in law enforcement and crime-related problems in a criminal justice system where race and poverty intersect. |

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| Room 102 - Education |
| Deficit Thinking in Today: At-risk and Labeling  *Wenjie Wang*  This presentation overall reviews the historical roots of deficit thinking, discusses the theory of cultural deficit thinking, which is defined as the accepted belief that a student’s and the student’s family social, cultural and economic environment is lacking or is deprived, and this leads to poor academic achievement (Cooper, 2006; Solorzano, 2001 & Valencia, 1997). The presentation further addresses how deficit thinking at the current time harms immigrants and their children in reflecting from the field of education. From there, the powerful influence and contributions among immigrants and their families are highlighted and suggestions in viewing of immigrants and their families from a multicultural perspective are provided. |
| Learning through Technology in Student-Centered Approach  *Roshani Rajbanshi & Margarita Ruiz*  Technology is a powerful tool that can bring change in students’ achievement (Bernard, Borokhovski, Schmid, Tamim, & Abrami, 2014). With the increase in the number of computers in the classroom, it has become necessary to utilize technology to promote student-centered learning (Becker, 2000b), improve problem solving skills (Bernard et al., 2014), improve 21st century skills (Hechter & Vermette, 2014), increase performance (Tamim, Bernard, Borokhovski, Abrami, & Schmid, 2011), and engage students in learning (Hechter & Vermette, 2014). When teachers use technology responsibly as a learning tool, technology has positive impacts on students (Becker, 2000a). Therefore, teachers need to shift their teaching practices from didactic lecture to constructivist and critical thinking learning by incorporating technology in the classroom (Becker 2000b) to improve teaching and learning. |
| Using technology to create a learning community of young children in the developing world  *Gaspard Mucundannyi & Mehmet Ozer*  Young children start learning in families before going to formal education of early childhood. They interact with different tools before and during childhood education. Early childhood teachers and parents in the developing world prevent young children using technology. Those young children lose opportunities to learn from their curiosity, build knowledge, and create their own understanding of community and the world around them. Cognitive studies show that a brain develops very fast in early childhood. Therefore, presenters discuss on how using social constructivism with technology creates a learning community of young children beyond their schools and homes in the developing world. |

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| Room 106 - Industrial Engineering & Mathematics |
| Al Mknifiâ’l-jabrwaâ’l-muqabala; Exposition of Algebraic Operations,  poem by Ibn Al-Haa’im  *Ishraq Al Awamleh*  Ibn Al-Ha'im's 1402 poem, Al Mknifiâ’l-jabrwa’l-muqabala, On Algebraic Operations. An English translation of Ibn Al-Ha'im's (1356-1412 AD) poem, Al Mknifi’l-jabrwa’l-muqabala, will be presented. To our knowledge, it has not been translated into English before. He made contributions in mathematics and Arabic literature. One of Ibn Al-Ha'im's best-known contributions in mathematics is this poem, On Algebraic Operations. The poem reflects the main concepts of algebra (al-jabrwa’l-muqabala in Arabic) in the 14th century. It was composed in 1402 AD and copied in 1882 AD. It's a versified poem consisting of 59 lines as follows: thanking the creator and his Prophet (2 lines), paying a tribute to the author’s mathematics teacher, Abu Al-Hasan Ali Al Jalawi (1 line), introducing algebra (3 lines), presenting algebraic terminology (13 lines), discussing addition and subtraction (5 lines), discussing multiplication and division (8 lines), introducing the six canonical equations (15 lines), and presenting a summary/conclusion (12 lines). We will translate the verses in the poem and give them a modern interpretation. The translation will be based on two main sources: first, the interpretation and analysis in Arabic of the same poem by Zakariah Al-Ansari (1888 AD), and second, the work of Mahdi Abdeljaouad on the English analysis and interpretation of another poem from the 12th century, UrjÅ’l-jabr wa'l-muqbala (which means Poem about Algebra), by Ibn al-samn. Ibn al-samn. |
| Effect of rapid prototyping process on mechanical  properties of wood plastic composites (polylactic acid and pinewood).  *Elias Arias Nava, Delia J. Valles-Rosales, Juan M. Diaz, Luis A. Rodriguez & Luis C. Mendez*  Rapid prototyping includes different types of manufacturing processes such as Stereolithography (SL), selective laser sintering, fuse deposition modeling (FDM) or 3D printing. 3D printing processes have been considered as manufacturing methods for developing, testing and validation of products for industry. However, use of different equipment in the manufacturing process may produce differences in the mechanical properties of the product. The study presents a technical comparison of the rapid prototyping machines Makerbot and Printrbot. ASTM standards were considered to validate the experimentation and tensile strength was the indicator of the response to analyze the behavior of the specimens under different conditions of fabrication. The material to create the samples was a bio-composite: polylactic acid (PLA) and pinewood. The results were analyzed using analysis of variance. ANOVA was performed to evaluate the importance and significance of the three factors: temperature, layer height and printer. |
| Mold Design For Wood Plastic Composite Using Pecan Shell And Polylactide Acid  *Jesus Wong, Delia Valles-Rosales & Young Park*  There are many known challenges when designing molds for wood plastic composites. The main objective of this research is to obtain a mold design for injection molding using wood plastic composites incorporating pecan shell as the fiber that can work correctly with this material. Also, a new standardized process is to be proposed in order to control temperature settings during the injection step. Degradation, as the main challenge, happens when the wood plastic composite is made of pecan shell and polylactide acid (PLA), due to the difference of the high melting point of the PLA and the low temperature point where decomposition of the pecan shell fibers begin. It is important to control the temperature of the composite at the injection process and the cooling time because the cooling of the material may not be uniform and it can create imperfections in the specimen. This study specifically focuses on thermal and heat transfer analysis including finite element analysis. NX Nastran will be used to do a software simulation to analyze how the material will behave under temperature changes. |
| Salt Marsh Conditions Provide Melongena corona with Batophora Algae Epibiont that Affects Life History  *Nina Dropcho*  Environmental conditions elicit morphological differences between populations, typical of other marine invertebrates across their ranges (Vermeij, 1974). In the current study, Melongena corona, or crown conch, were observed inhabiting diverse saltwater habitats, with one population hosting a unique algal epibiont on their shells that could be affecting their life cycle. It was hypothesized that Melongena corona differed in size and algal level between habitats. Conch populations were measured from salt marsh, coastal, and bay habitats in Florida during summer 2016 and winter 2016-17. Results from One-Way Analyses of Variance (ANOVA) confirmed that Batophora-hosting conchs grew significantly larger in shell length and width, and algal level, than conchs occupying other habitats (p<.001). Field and lab experiments revealed no signs of algal regrowth 10 days post-removal. Based upon these observations, I propose a life-cycle for Bataphora-hosting M. corona that differs from the life-cycle of conspecifics in other habitats. |

**Poster Presentations**

Domenici Hall Atrium

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| Poster # | Poster Session A - 6:30-7:20 PM | |
| 1 | Weight gain and behavior of Raramuri Criollo versus crossbred steers developed on Chihuahuan Desert rangeland  *Matthew McIntosh, A. F. Cibils, Rick E. Estell, Sergio A. Soto-Navarro, Alfredo L. Gonzalez, Shelemia Nyamuryekungâe, & Sheri Spiegal* | Animal & Range Sciences |
| 3 | A Comparison of Two Vegetation Height Measurement Methods for Applications to Sage Grouse Habitat Evaluations  *Sean Di Stefano, Nelson Stauffer, Jason Karl, & Sarah McCord* | Animal & Range Sciences |
| 5 | Determination of Succession of Rumen Bacterial Species in Beef Calves  *Kathryn Smith, A. L. Garza, K. M. Butterfield, A. M. Dickey, A. K. Lindholm-Perry, J. E. Wells, H. C. Freetly, & S. L. Lodge-Ivey* | Animal & Range Sciences |
| 7 | Effects of Conservation Practices on Ecosystem Health in the Rio Puerco Watershed  *Jeremy Schallner, Amy C Ganguli, Nicole Pietrasiak, & Kert R. Young* | Animal & Range Sciences |
| 9 | Are dog owners able to correctly identify primary and secondary emotions in their canine companions based on dog vocalization and body language?  *Christabel Castro, Gaylene Fasenko, Michael C. Hout, & Claren Wilson* | Animal & Range Sciences |
| 11 | Inhibition of CXCL12-CXCR4 signaling at the fetal-maternal interface impacts vascularization during implantation and placentation in sheep  *Cheyenne Robinson, Kelsey E. Quinn, Stacia Z Prosser, Kim K. Kane, & Ryan L. Ashley* | Animal & Range Sciences |
| 13 | Electrodialysis Performance in Non-Ohmic Region  *Fatteneh Naderi Behdani* | Chemical & Material Engineering |
| 15 | Activation of the H-NOX redox sensor in Vibrio cholerae by a zinc ligand switch mechanism  *Roma Mukhopadhyay & Dr. E. T. Yukl* | Chemistry & Biochemistry |
| 17 | Characterization of flexible loop structure of zinc binding AztC protein and its role in zinc transfer from AztD, a metallochaperone in Paracoccus denitrificans  *Durga Neupane, Stephanie Fullam, Hridindu Roychowdhury & Erik T. Yukl* | Chemistry & Biochemistry |
| 19 | The hormetic effect s of UVA irradiation on Drosophila melanogaster performance  *Raymond Berry* | Biology |
| 21 | SkitoSnack: An Artificial Blood Meal for Mosquito Control  *Krisitina Gonzalas, Stacy Rodriguez, Hae-Na Chung, Alora Garibay, Margaret Kowoloski, & Immo Hansen* | Biology |
| 23 | Evaluation of Guar Genotypes in southern New Mexico  *Alonso Garcia Jr. & Kulbhushan Grover* | Plant & Environmental Science |
| 25 | Impact of Phenotypic Selection on the Frequencies of SSR-defined Genomic Regions Associated with Drought Tolerance in Alfalfa  *Lovepreet Singh, Ian Ray, & Chris pierce* | Plant & Environmental Science |
| 27 | A review of data on NM pollinator bats and Climate Change in NM  *Fiona McCrossin* | Fish Wildlife & Conservation Ecology |
| 29 | Potentially Mineralizable Carbon of soil under different cover crop residue quality and quantity  *Binod Ghimire, Rajan Ghimire, Abdel Mesbah, & Dawn VanLeeuwen* | Entomology, Plant pathology and Weed Science |
| 31 | Model Order Reduction via Proper Orthogonal Decomposition for Cardiac Propagation Modelling  *Riasat Khan & Kwong T Ng* | Electrical & Computer Engineering |
| 33 | Experimental Results to Reduce Sidelobes in Random Noise and Linear Frequency Modulated Signals  *Ehtesham Shareef, Dr. Dawood, & Jim Boehm* | Electrical & Computer Engineering |
| 35 | The New Generation Steering Wheel Cover  *Jelena Karapetrovic* | Civil Engineering |
| 37 | The impact of traffic signal parameters on various types of intersection related crashes  *Dustin Jolovic, Abhisek Mudgal, Ivana Tasic, Aleksandar Stevanovic, & Peter Martin* | Civil Engineering |
| 39 | Financial Performance Forecasting of Large-cap Companies on Us Stock Market Using Artificial Neural Networks  *Alireza Moghimi* | Industrial Engineering |
| 41 | Land suitability for agriculture plantations a multi-criteria spatial modeling approach  *Pedro Barajas & Delia Valles-Rosales* | Industrial Engineering |
| 43 | Axiomatic Designing for a Base Plate and Penholder in a Manufacturing Cell  *Alejandro Najera-Acosta, Delia J. Valles-Rosales, & Blanca R. Venegas-Mata* | Industrial Engineering |
| 45 | Modeling and data analysis of exercise durations and the perceived exertion levels  *Jesus Villegas & Alla Kammerdiner* | Industrial Engineering |
| 47 | Statistical analysis of simulated near falls experiments to enable dynamic approaches to sensor-based near-falls tracking  *Jesus Villegas & Alla Kammerdiner* | Industrial Engineering |
| 49 | Artificial inoculation mature bulb selection of short-day onions against Fusarium Basal Rot  *Subhankar Mandals & C. S Cramer* | Plant and Environmental Sciences |

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| Poster # | Poster Session B – 7:20-8:10 | |
| 2 | Investigating post-impact climate scenarios for early Mars with a 3D GCM  *Kathryn Steakley, James Murphy, Melinda Kahre, & Robert Haberle* | Astronomy |
| 4 | Correcting F10.7 for use in Ionospheric Models  *Sam Schonfeld, Stephen White, Rachel Hock-Mysliwiec, & James McAteer* | Astronomy |
| 6 | Characterizing the Environments of Giant LyÎ± Blobs: How Often Do Blobs Reside in Overdensities?  *Agnar Hall & Moire Prescott* | Astronomy |
| 8 | Formation of the Martian Polar Layered Terrains: Quantifying Polar Water Ice and Dust Surface Deposition during Current and Past Orbital Epochs  *Jeremy Emmett & James R. Murphy* | Astronomy |
| 10 | Determining the size of coronal bright points using cross-correlation methods and multi-wavelength data from AIA/SDO  *Laurel Farris & R. T. James McAteer* | Astronomy |
| 12 | How the Internet and Online Education Encourage Culturally Responsive Teaching in Saudi Arabia  *Nouf Alsuwaida* | Curriculum & Instruction |
| 14 | Starting the Conversation: A Working Definition of Critical Digital Pedagogy  *Susan Bontly, Samar Khalil, Tahani Mansour, & Julia Parra* | Curriculum & Instruction |
| 16 | Social Media Use in Post Secondary Education with Undergraduates: A Literature Review  *Cynthia Gomez* | Curriculum & Instruction |
| 18 | The SOAR Lab: Balancing Implementation With Evaluation for K-12 Outreach Programs at NMSU  *Germain Degardin, John Kulpa, Luis Rangel, & Pati Shubhasmita* | Curriculum & Instruction |
| 20 | A Comparison of Two Pedagogical Approaches in General Chemistry Laboratories: Traditional vs. Inquiry-based  *Luciaa B. Chacon Diaz, H. Prentice Baptiste, Cecilia Hernandez & Antonio Lara* | Curriculum & Instruction |
| 24 | Escuchame porque tengo voz: The testimonios of Latino male adolescents in group therapy at a southwest secondary school  *Alejandro Cervantes, Ivelisse Torres Fernandez, & Judith Flores Carmona* | Counseling & Educational Psychology |
| 26 | Evaluating the Impact of Automated Aid Reliability and Transparency on Operator’s Trust: A Comparison of the Trust in Automated Systems and Human Computer Trust Scales  *Elizabeth Kaltenbach & Igor Dolgov* | Psychology |
| 28 | Hierarchical Structure and Testing Effects as Desirable Difficulties  *Alexandra Smith & Dominic Simon* | Psychology |
| 30 | Does Encoding Occur During Processing, Retrieval, or Both?  *Hunter Myuz & David Trafimow* | Psychology |
| 32 | Big Phish: The Difficulty Factor for Human Trust in Automation in the Cyber Domain  *Scott Mishler, Jing Chen, Edin Sabic, Bin Hu, Ninghui Li, & Robert Proctor* | Psychology |
| 34 | Take the Wheel: Implementing Spatial Auditory Tones into Pedestrian Warning Systems  *Edin Sabic, Scott Mishler, & Jing Chen* | Psychology |
| 36 | Guerreras Fronterizas. The resiliency of a Mexican mother with a son who has intellectual disabilities in the Mexican northern border.  *Ana C. Lopez & Dr. Loretta Salas* | Special Education |
| 38 | On the challenges facing the United States in light of changes in the global environment, with an emphasis on changes in the last decade.  *Fredrick Swenson* | Government |
| 40 | Effect of Nixtamalization on the folic acid fortification efficient of Southwestern blue corn varieties  *Maria Cuellar, Richard Pratt, Stuart Munson-McGee, & Efren Delgado* | Family & Consumer Sciences |
| 42 | The Cooperative Extension Service: A Collective Case-Study of Bilingual Extension Professionals’ Experiences Reaching Spanish-Speaking Populations  *Karim Martinez* | Educational Leadership & Administration |
| 44 | Effect of Glandless Cottonseed Content as Main Protein Source of Extruded Shrimp Feed on Growth Performance and In Vitro Digestibility.  *Jorge Galarza, Efren Delgado, Stuart Munson-McGee, & Damian Reyes* | Family & Consumer Sciences |
| 46 | Dynamical Systems and Conley’s Topological Index  *Ibrahim Jawarneh* | Mathematical Sciences |
| 48 | Investigating the hospitalization of Parkinson’s disease patients in New Mexico state using data mining  *Najah Al-Shanableh* | Computer Science & School of Nursing |