19th Annual Graduate & Professional Student Research Forum

Saturday, April 8, 2017
9:00 a.m. – 2:00 p.m.

University of Nevada, Las Vegas
Student Union

Hosted by: Graduate & Professional Student Association and the Graduate College
The Graduate & Professional Student Research Forum is sponsored by the Graduate & Professional Student Association and the Graduate College.

We’d like to thank the faculty judges and student volunteers. Without your support this event would not be possible.
Letter from President
Len Jessup, Ph.D.

Dear students, colleagues, and guests:

Welcome to UNLV’s 19th annual Graduate Research Forum, a time when we celebrate and showcase the incredible scholarship and creative activity produced by our graduate and professional students each year. Enhancing our graduate-level education, research, and creative activities is a key element of UNLV’s Top Tier initiative and drive to rise in national prominence.

I am consistently impressed by the innovation and creativity of our graduate students, and even more amazed at how well UNLV’s research community fosters and promotes their contributions across the community and even internationally. We are truly championing a culture that is open to new ideas and collaboration while valuing our diversity and unique academic strengths.

I know from personal experience how conversation can spark a new way of thinking and set a student on a path for world discovery. So I encourage you to be curious and engage in conversation about the projects. Ask participants to share their moments of discovery, as well as their setbacks and how they overcame them. Find out more about the faculty and fellow students who helped along the way. And learn how their work can transform our community and improve your life.

After you spend time learning more about the work that our graduate and professional students are doing every day on this campus, I’m sure you will find their achievements as innovating, inspiring, and truly exceptional as I certainly do.

Thank you for your participation and ongoing support for research excellence.
Letter from Executive Vice President and Provost
Diane Z. Chase, Ph.D.

Strong research and creative activity form a cornerstone of all top tier universities, and the work on display at the 19th annual Graduate & Professional Student Research Forum is evidence that we're well on our way to achieving this aspiration for UNLV.

As student researchers and creators, the work that you do is critical to our success as a university. I believe strongly that just as student learning is enriched through engagement with faculty who are innovators in their fields, our faculty benefit from the fresh perspectives you, as students and researchers, bring to our university.

Since the mid-1980s, I have carried out archaeological research at the ancient Maya site of Caracol, Belize. Our research team is excavating this large city, its royal tombs, and major centers of civic life, uncovering the complex relationships that existed between these ancient people and their environment. During this time, the contributions of hundreds of students - some of whom are now colleagues - have helped our team refine theories, challenge ideas, and shape the direction of our work. I'm delighted that this project is now affiliated with UNLV and that I will be able to work with, learn with, and learn from our talented students. Importantly, this research also has been informed by and made richer through collaborations with colleagues from various disciplines outside of my own.

As I near the end of my first year at UNLV and as I continue to get to know the university, I'm amazed at the breadth of research and creative activity occurring each and every day on our campus - and of the willingness to innovate within and outside of discipline boundaries. So, during today's forum, I encourage you to listen to and learn from presentations made by your peers and to engage in conversations outside of your core areas.

I am confident that you will be as impressed and inspired by UNLV research, as I am every day.
Hello and welcome to the 19th Annual Graduate & Professional Student Research Forum at the University of Nevada, Las Vegas! It is a great pleasure to participate in this UNLV tradition with you once again. When this event began in 1998, we had far fewer graduate programs and students, and we were a very different institution. We were a university with high aspirations, just 6 years past granting our very first Ph.D. degree. In many ways, the GPSA Research Forum has grown-up alongside graduate education at UNLV. It has been a dizzying 19 years of challenges and opportunities, growth of programs and students, and collective dedication to cultivating excellence in our research, scholarship, and creative activities. Today, UNLV is a thriving Minority Serving Institution on the path to top tier status, and graduate education is central to our success. UNLV and Southern Nevada have grown in size, stature, and diversity; and the Graduate & Professional Student Association has become a strong, thriving, and respected voice for the more than 4,500 graduate and professional students on campus today, and a tremendous partner with the Graduate College. I am extremely grateful for your leadership and your willingness to collaborate with us on initiatives, large and small, to advance our collective goals.

With more than 145 graduate and professional programs at UNLV, our students span the disciplinary spectrum. We have excellent STEAM programs (Science, Technology, Engineering, Arts and Math), highly respected hotel and business programs, impactful social science programs, outstanding law and dental schools, a new medical school, innovative professional masters and doctoral programs in an array of fields, and excellence in our array of health programs. Our students are diverse, and your range of expertise is even more so. This is one of the most exciting aspects of the Annual Graduate & Professional Student Research Forum: it showcases research, scholarship, professional and applied projects, and creative activity from every corner of campus, addressing a vast array of questions and issues. By bringing all of our students together in this single event we foster communication and collaboration across disciplinary silos and encourage students to expand their own understanding by learning from one another. This is an event that inspires us to know more, to work harder, to be better --- as individuals, and as a community of graduate scholars. Equally important, participation in this event helps develop your professional socialization skills and provides an opportunity to practice talking about your work to non-specialists in your field. I especially appreciate how this Research Forum highlights the impact that our graduate programs are having on students, and through your work, how you are shaping our world and our future.

Our Graduate College motto is: Inspired Scholars, Innovative Thinkers, Impactful Education. As such, it is an honor to be involved with this event that exemplifies innovation, inspiration, and impact, and to celebrate you, our graduate and professional students. I am grateful for your participation this weekend and for the innovative and impactful work that you do. You inspire me! I wish you a wonderful and provocative Research Forum.
2017 Graduate & Professional Student Research Forum
Schedule of Events

Friday, April 7, 2017
Inspiration, Innovation, Impact Reception 4:00 – 6:00pm ....................... Student Union Ballroom

Saturday, April 8, 2017
Graduate & Professional Student Research Forum 8:30am – 2:00pm ............... Student Union

Platform Sessions ...................................................................................... Student Union
  Science Platform Session A: 9:00 – 11:45am ....................................... Room 205
  Science and Health Science Platform Session B: 9:00 – 11:45am .......... Room 207
  Science and Engineering Platform Session C: 9:00 – 11:45am .......... Room 208A
  Social Science: Platform Session A: 9:00 – 11:30am ....................... Room 208B
  Social Science: Platform Session B: 9:00 – 11:30am ....................... Room 208C
  Social Science and Hotel: Platform Session C: 9:00 – 11:30am .......... Room 209
  Social Science: Platform Session D: 8:45 – 11:30am ......................... Room 211
  Education: Platform Session A: 8:45 – 11:45am .............................. Room 213
  Humanities & Fine Arts: Platform Session A: 9:15 – 11:00am .............. Room 218

Poster Sessions ...................................................................................... Student Union
  Science and Engineering: Poster Session A: 8:45 – 11:30am .............. Ballroom
  Science and Health Science: Poster Session B: 8:30 – 11:30am .......... Ballroom
  Science and Health Science: Poster Session C: 9:00 – 11:30am .......... Ballroom
  Science and Health Science: Poster Session D: 8:45 – 11:45am .......... Ballroom
  Science and Health Science: Poster Session E: 9:00 – 11:45am .......... Ballroom
  Social Science: Poster Session A: 9:00 – 11:30am .......................... Ballroom
  Social Science: Poster Session B: 9:00 – 11:30am .......................... Ballroom
  Social Science: Poster Session C: 9:00 – 11:15am .......................... Ballroom
  Social Science and Hotel: Poster Session D: 8:45 – 11:30am .............. Ballroom
  Social Science & Fine Arts Poster Session E: 9:15 – 11:15am .......... Ballroom
  Education: Poster Session A: 9:15 – 11:15am .............................. Ballroom

Luncheon and Awards Ceremony: noon – 2:00pm ................................. Ballroom
2017 Graduate & Professional Student Research Forum

Table of Contents

Platform Sessions

Science Platform Session A ................................................................. 13
Science and Health Science Platform Session B................................. 19
Science and Engineering Platform Session C .................................... 25
Social Science: Platform Session A .................................................. 31
Social Science: Platform Session B .................................................... 37
Social Science and Hotel: Platform Session C ................................. 43
Social Science: Platform Session D .................................................... 49
Education: Platform Session A ....................................................... 55
Humanities & Fine Arts: Platform Session A ................................. 61

Poster Sessions

Science and Engineering: Poster Session A ..................................... 65
Science and Health Science: Poster Session B .............................. 71
Science and Health Science: Poster Session C .............................. 77
Science and Health Science: Poster Session D .............................. 83
Science and Health Science: Poster Session E .............................. 89
Social Science: Poster Session A .................................................... 95
Social Science: Poster Session B .................................................... 101
Social Science: Poster Session C .................................................... 107
Social Science and Hotel: Poster Session D ................................. 113
Social Science and Fine Arts: Poster Session E ............................ 119
Education: Poster Session A ......................................................... 123

Index ............................................................................................. 129
### Presentations

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Department/Field</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>Daniel Mast, Department of</td>
<td>Chemistry</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Theresa Clark, School of Life Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>Daniel Lauztzenheiser,</td>
<td>Department of Mathematical Sciences</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>Nudthawud Homtong,</td>
<td>Department of Geoscience</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>Schetema Nealy, Department of Chemistry</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>Surbhi Sharma, School of Life Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Sean Breckling, Department of Mathematical Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>Carmen Vallin, School of Life Sciences</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11:30 – 11:45am</td>
<td>Amro Abdalla, Department of Chemistry</td>
<td></td>
</tr>
</tbody>
</table>

**Science Platform Session A – Room 205**
Negative Thermal Bond Expansion of a Molecular Solid, Tc2O7
Daniel Mast, Bradley Childs, Keith V. Lawler, Frederic Poineau, Alfred P. Sattelberger, Kenneth R. Czerwinski, Paul M. Forster | Chemistry

The binary oxides of group 7 transition metal form a series of unique structures for Mn2O7, Tc2O7 and Re2O7. Two of the three crystallize as molecular solids with two metal centers bridged by a single oxygen. Molecular metal oxides stable under ambient conditions are rare and offer unique insight into the chemistry and physics of materials. The structure of Tc2O7 is characterized by linear molecules with a single bridging oxygen and the terminal oxygen in a staggered conformation. In a combined computational and experimental investigation, anomalous thermal expansion behavior has been identified between room temperature and 100 K. Using variable temperature single crystal diffraction and Langevin Molecular dynamics we can model the negative thermal bond expansion.

Presentation: American Nuclear Society Annual Winter Meeting (November 2016)

Power of the Cushion: Does Cushion Size and Microhabitat Protect mosses from water-stress along an aridity gradient in the Mojave Desert?
Theresa Clark, Lloyd Stark, Dale Devitt | Life Sciences

Increased stress and mortality in the arid land moss, Syntrichia caninervis, have been linked to prior climatic flux and simulated climate stress, but observations of ecophysiological relationships under present climate are needed to ground interpretation of such experimental work. Lab work has suggested that the amount of time mosses spend hydrated (i.e. hydroperiod) is critical to activating desiccation tolerance mechanisms, which prevent lethal damage. In my project, I am quantifying how microhabitat influences the hydroperiod of S. caninervis cushions in the Desert National Wildlife Refuge, NV. The hydroperiods of mosses were found to be highly variable across different microhabitats, and little variation was linked to cushion size. Preliminary findings from 20 rainy days this winter tell an interesting story. The hydroperiod cycling of these mosses is dynamic as they respond rapidly to rain and soil moisture thawing events. All mosses hydrated fully within 10 minutes of a rain event’s start, regardless of sheltering by nurse shrubs, but full-hydration terminated quickly (< 1 day) if the rain event was small (< 4 mm). Mosses appear to spend significantly more time in a state of partial hydration (likely metabolically inactive or shutting down) than fully hydrated. Interestingly, thaw cycles after larger rain events (20 mm), drove hydroperiods in some mosses lasting 3 days, while other mosses transitioned between partial and full-hydration daily. These transitions from partial to full-hydration appear to be driven by diurnal freeze-thaw cycling of soil moisture.
Cross Sections of Generalized Apollonian Sphere Packing
Daniel Lautzenheiser | Mathematical Sciences

Fractal images occur naturally in mathematics and in nature. Given a fractal image, one of the main goals is to identify a collection of functions (called a thin group) corresponding to the fractal. Conversely, given initial data, one can, under certain conditions, generate a fractal image. In this talk, we outline a process that uses techniques from our previous work, hyperbolic geometry, and algebraic geometry. We demonstrate a connection between the thin group structure and a “pairing function” on a class of surfaces.

Presentation: West Coast Number Theory (December 2016)

Application of the Soil and Water Assessment Tool (SWAT); Climate Change and Hydropower Constructions Impacts in the Lower Mekong Basin
Nudthawud Homtong, Gabriel Judkins | Geoscience

The Soil and Water Assessment Tool (SWAT) is a physical-based simulation of a watershed under the practice of water use, sediment, land surface, and agricultural activities in a continuous time span. The model is consistently developed by United States Department of Agricultural, Agricultural Research Service (USDA-ARS) since the 1990s. An ArcMap program, called ArcSWAT is employed in this research to model basin-wide hydrology amid the dual stresses of climate change and hydraulic infrastructure in the Lower Mekong Basin (LMB); as there are eleven hydropower dams proposed to serve high demands of electricity, together with climate change that triggers hydrologic system of the basin. ArcSWAT divides a basin into continuous units referred to as hydrologic response units (HRUs) based on slope, land cover, and soil type. Input data includes weather conditions, land cover, soil types, surface water and groundwater dynamics, agricultural activities, and basin management. The input climate change data for the simulation refers to downscaled regional climate change model of ECHAM5; with historical data of 1961-2000, future conditions of 2046-2064 and 2081-2100. The planned hydropower infrastructures in the mainstream of the LMB will be applied in the model as an input data of the basin management. The impacts of climate change and hydropower infrastructures are expected to decrease flow rate in the mainstream, as well as decrease in sediment flux. The future hydrological conditions of the LMB are expected to be beneficial for the basin management and adaptation.
Numerous programs in the United States offer K-12 teachers the opportunity to participate in a science research experience (SRE). It is thought that, as a result of participating in an SRE, teachers will increase their interest in science; increase their knowledge of both science content and science processes; and change their classroom practices in ways that will ultimately help their students develop better understandings of science and its practices. Although the literature reports a variety of ways that participating in an SRE affects teachers’ views of science and their classroom practices, there is not much literature, if any, on how an international research experience affects teachers’ views and practice. The goal of the current project was to examine the perceptions of seven teachers who participated in a 3-week field research experience in China as part of the NSF-sponsored Tengchong PIRE (Partnerships in International Research and Education) project. Each of the teachers was interviewed and surveyed, before and after the field research experience, about their views of science and their views of classroom practice. In this presentation, we will discuss the teachers’ perceptions of science classroom practice and how those perceptions were influenced by their participation in the international SRE.

Presentation: Biennial Conference on Chemical Education (August 2016)
Parameter Sensitivity Analysis of the Navier-Stokes-Alpha Model of Fluid Turbulence
Sean Breckling, Monika Neda, Fran Pahlevani | Mathematical Sciences

We present a computational study of the sensitivity of the Navier Stokes-Alpha model with respect to the filter length, alpha. The sensitivity of the model is evaluated over a variety of benchmark problems using the sensitivity equations method. Stability analysis for the sensitivity equations is provided, as are example model-reliability intervals for each benchmark problem.

Presentations: Finite Element Circus, Rutgers University (April 2017)  
Joint Mathematics Meeting, Atlanta, GA (January 2017)

The Role of Stem Loop Structures (SLSs), a type of non-B DNA, in Bacillus subtilis Stationary Phase Mutagenesis
Carmen Vallin, Eduardo Robleto, Tatiana Ermi | Life Sciences

It is widely accepted that mutations are generated during the process of DNA replication in actively dividing cells, however research dating as far back as 1955 has continued to build evidence for mutations arising in non-growing conditions, a phenomenon known as stationary-phase mutagenesis (SPM). In Bacillus subtilis, it has been proposed that the process of transcription influences stationary-phase mutagenesis. The specific mechanisms of how transcription mediates mutagenic events during stationary phase are currently under investigation. One interesting possibility is that the act of transcription promotes the formation of non-B DNA structures that can block RNA polymerase and trigger the Transcription Coupled Repair (TCR) cascade. TCR is a repair pathway that directs repair to highly transcribed genes. TCR begins when an RNAP stalls due to a block in the DNA, usually in the form of DNA damage. I will test the hypothesis that Non-B DNA structures, such as stem-loop structures (SLS), increase the accumulation of mutations in highly transcribed genes of B. subtilis during starvation through gratuitous repair. Repair has the potential to promote mutations in stationary phase cells due to the increase in abundance of error prone polymerases that participate in the final steps of repair pathways such as TCR.

Presentation: 60th Annual Wind River Conference on Prokaryotic Biology (June 2016)
Medulloblastoma (MB) is a malignant pediatric tumor with poor prognosis and the highest incidence of all pediatric central nervous system tumors (4). Despite the efforts to elucidate MB tumorigenesis, the mechanism of MB tumorigenesis is still unclear. Our long-term goal is to understand the mechanism by which MB manifests itself in cerebellum. Previous studies have shown that in mice, MB arises from cerebellum cerebellar granular cell precursors (CGPs) (2). Recent studies have also shown receptor tyrosine kinase signaling such as Insulin like growth factor like 1 receptor (IGF1R) is involved in mouse CGPs associated medulloblastoma (1). IGF1R has been suggested to regulate mouse CGPs survival and proliferation. Moreover, acid sphingomyelinase (ASM) is a lysosomal enzyme that catalyzes breakdown of sphingomyelin lipid of the plasma membrane (5) ASM has also been shown to affect cell survival and aging. In our lab, ASM has been shown to affect mammalian cell signaling and cell fate. (5). We have shown that ASM is involved in Insulin like growth factor 1 receptor signaling in order to regulate 293T cancer cells’ survival and proliferation. Furthermore, inhibiting ASM in these cells using ASM inhibitor, desipramine downregulate IGF1R signaling and lower cell survival and proliferation rates. Current work in our lab aims to create ASM conditional knock out mouse model to study the role of ASM in GCPs survival. In our current project we hypothesize that ASM regulate mouse CGPs survival and proliferation through modulating Insulin like growth factor 1 pathway.
Science and Health Science Platform  
Session B – Room 207

Presentations

9:00 – 9:15am  Joshua Greenwood, School of Life Sciences
9:15 – 9:30am  Moinak Bhaduri, Department of Mathematical Sciences
9:30 – 9:45am  Stephanie Ralston, Department of Geoscience
9:45 – 10:00am Joshua Bailey, Department of Kinesiology and Nutrition Sciences
10:30 – 10:45am Jacqueline Phan, Department of Chemistry
10:45 – 11:00am Michael Isaacs, School of Life Sciences
11:00 – 11:15am Sidney Shields, Department of Mathematical Sciences
11:15 – 11:30am Sydney Spoon, Department of Kinesiology and Nutrition Sciences
11:30 – 11:45am Travis Parsons, School of Life Sciences
Effects of Rate of Drying, Life History Phase, and Ecotype on Desiccation Survival in the Moss *Bryum argenteum*
Joshua Greenwood | Life Science

The project I am presenting is centered upon the ability of *Physcomitrella patens*, to undergo physiological hardening in response to hydration stress eliciting a response capable of surviving a rapidly applied desiccated state. I show for the first time that physiological hardening occurs in *P. patens* and describe the period for which this hardening lasts. Organisms were exposed to a hardening treatment of two rates of slow drying to 50% RH (one at 4 days in length and another at 8). Following rehydration from this hardening samples were given one, four, eight, or twelve days of constant hydration (deacclimation) followed by a rapid drying event in which samples were dried to 50% RH in under an hour. A rapid dry event is lethal to unhardened members of this species and serves as a test to examine whether the previous exposure to a slow drying has resulted in hardening. The length of time spent hydrated before the rapid drying event allowed for determination of how long the hardening would be maintained in the absence of stimuli promoting tolerance of desiccation. Evidence gathered so far indicates that hardening can be obtained by a slow drying event and that protection lasts up to four days following the initial stimuli. Survival rates between hardened and unhardened samples are dramatically different with survival much higher in hardened tissues compared against unhardened tissues when both were subjected to a rapid drying event.

On Consequences of Time Reversal for Repairable Systems
Moinak Bhaduri, Alex Deehl, Chih-Hsiang Ho | Mathematical Sciences

Repairable systems originate from diverse fields of human activity. Fundamentally, these are processes capable of witnessing multiple failures (or events) over time. Examples could include sparks along nerve fibers, the eruptions of volcanoes, air crashes etc. Of special interest is the analysis of deterioration (i.e whether the failures are getting more frequent with advancing age) and improvement (whether the events are getting rare). Traditional analyses tackle the problem by measuring times from the earliest to the latest event. Our work is an endeavor to show how a minor change about switching the time axis i.e. measuring time from the latest to the earliest, can imply drastic and profitable ramifications in connection to process deterioration. Drawing upon examples stemming from neurobiology, weather science, and geology, we will demonstrate the efficiency with which one can weed out deteriorating systems, an identification problem where the traditional forward analyses fail, so that precautionary measures can be undertaken to cushion the blow.

Presentation: 2016 Joint Statistical Meetings in Chicago
Amorphous or poorly-crystalline phases are a major component of all rock and soil samples measured to date by Mars Science Laboratory’s X-ray diffractometer, CheMin. X-ray diffraction (XRD) patterns of these samples are consistent with the presence of amorphous silicates and Fe-oxides. Allophane is a poorly-crystalline aluminosilicate that occurs terrestrially as a weathering product in volcanic soils. In Fe-rich environments, Fe can substitute for some of the Al in allophane, producing Fe-substituted allophane. If the Fe contents of the soil are very high, hisingerite, an Fe-rich allophanic material, can form. Because the surface of Mars is Fe-rich, we hypothesize that hisingerite and Fe-containing allophane are present in the Mars amorphous soil component. We synthesized hisingerite, Fe-substituted allophane, and hisingerite using millimolar solutions of FeCl₃·6H₂O, AlCl₃·6H₂O, and tetraethyl orthosilicate. Infrared spectroscopy, scanning electron microscopy, XRD, evolved gas analysis (EGA), and transmission electron microscopy were then used to ensure that the synthesized materials were both properly synthesized and appropriate analogues for martian materials. All analyses were consistent with the successful synthesis of allophane and hisingerite, and EGA data demonstrate that our synthetic materials are appropriate analogues for the martian amorphous soil component. Hisingerite, allophane, and Fe-containing allophane were dissolved at pH 3 and 5, and dissolution rates were determined based on the measured release of silica into solution. These data can help us constrain exposure time of these materials to liquid water on the martian surface and elucidate the history of water on Mars.

Astrobiology Graduate Conference (July 2016)
UNLV Geosymposium, (April 2016)
A Potential Solution to a Poopy Problem: The Role of Bile Salt Analogs in the Prevention of Clostridium difficile Infection
Jacqueline Phan, Ernesto Abel-Santos | Chemistry

Clostridium difficile infection (CDI) is a major cause of antibiotic-associated diarrhea. In 2011, over 500,000 patients were diagnosed with CDI in the United States and over 29,000 people died of CDI-related complications. With an average of $35,000 to treat single inpatient CDI, cost burden to the healthcare system can reach up to $3.2 billion annually. As both hospital- and community-acquired CDI incidences rise due to emergence of hypervirulent strains and CDI reoccurrences of up to 25%, standard treatments are rendered less effective and new prevention methods are critical.

CDI is caused by bacteria called Clostridium difficile. A key characteristic of Clostridium difficile is its ability to form tough and dormant structures called spores. The spores’ dormant nature allows them to survive in the gastrointestinal tract of susceptible patients without showing any signs of infection. When the spores are under stress, they can germinate into toxin-producing cells that cause symptomatic infection.

Clostridium difficile germination is promoted by the bile salt taurocholate with the amino acid glycine. Another naturally-occurring bile salt called chenodeoxycholate (CDCA) can compete with taurocholate to inhibit spore germination. Previously, CamSA, a synthetic bile salt analog of taurocholate, was found to be a more potent germination inhibitor than CDCA when tested against epidemic type X strain 630. Currently, a new analog called “07C” revealed to be a stronger germination inhibitor than CamSA in strain 630 as well as in various other strains. From these explorations, bile salt analogs have potential to serve as CDI preventative treatments in antibiotic-treated patients.

Passive foot-ankle prosthetics are the most commonly prescribed devices for people with below-the-knee amputations. Traditional kinetic measurement techniques lack the specificity to differentiate the mechanical costs inherent to bionic systems that feature a mechanical prosthesis. Our expanded collision-based analysis measures the orientation of force and velocity vectors in every instance in the stride to provide three dimensionless metrics that quantify gait mechanics: 1) mechanical cost of transport - the work inherent to the point-mass system, 2) interlimb cost of transport - the opposing leg work done on the mass during the step-to-step transition in walking gaits, and 3) collision fraction - a ratio describing the relative amount of collision mitigation from vector geometries throughout the stride. These metrics expand upon fundamental gait analysis techniques, but better exemplify differential performance of system mechanics. We apply this analysis to a repeated measures data set of recorded walking dynamics of people with below-the-knee amputations using the same passive prosthetic across a range of walking speeds. Subjects completed a number of trials using their device as prescribed before repeating the protocol with a stiffer heel spring. Our comparative results demonstrate that heel stiffness affects walking gait dynamics for every individual between conditions and suggests an optimal stiffness parameter that reduces the mechanical costs of the point-mass system for the tested speed. Our analysis method is adaptable to any force plate data and can be utilized across species and machines to determine and improve the system’s mechanical costs of transport.

Presentations: 18th Annual Graduate & Professional Student Research Forum, (March 2016) Inaugural Graduate Student Showcase (October 2016) 3rd Annual Rebel Grad Slam (October 2016)
A Weak Galerkin (WG) Method for Maxwell's Equations in the Time Domain
Sidney Shields | Mathematical Sciences

Corrugations are often added to the conductors of coaxial cables for use in industrial applications where flexibility and homogeneity of the dielectric are needed while avoiding the usage of very lossy braided outer conductors. Due to the lack of well-developed time domain models for these cables, the cables were modeled by numerically solving axially symmetric Maxwell's equations in the dielectric. Although there has already been many implementations of a nodal Discontinuous Galerkin method for solving the axially symmetric Maxwell's equations, there has yet to be any stability or convergence results proven for this method.

The Effects of an Acute Bout of Exercise on Hunger Hormone in Individuals at Risk for Type 2 Diabetes
Sydney Spoon | Kinesiology and Nutrition Sciences

Background: Postprandial exercise has been shown to decrease blood glucose levels in prediabetic patients and can affect hunger hormone levels.

Purpose: To determine if gut hormones including acylated ghrelin and GLP-1 levels are altered in response to an acute bout (15 minutes) of walking in individuals at risk for type 2 diabetes mellitus (T2DM).

Methods: Eleven subjects at risk for prediabetes (fasting blood glucose 100-125mg/dL) participated in this randomized crossover design trial. Subjects arrived at the laboratory following an overnight fast and underwent one of two conditions: 1) Test meal with no walking (CON) or 2) Test meal followed by a 15-min treadmill walk at preferred walking speed (WALK). Blood samples were taken over 2 hours and assayed for acylated ghrelin and active GLP-1. A repeated measures ANOVA was used to compare mean differences for all outcome variables.

Results and Conclusion: Student will share this information during her presentation. Not available before booklet printed.
All animals start out as a single cell, which then builds itself into a complex organism with hundreds to trillions of cells. As it grows, its cells multiply and take on distinct identities, forming complex structures that perform distinct roles in the body. In detail, the structure of each organ is integral to its function. To build a functional organ, these cells actively talk to one another not only build the initial structure, but also to actively maintain it throughout the lifetime of the organism. In my work, I use a simple but powerful model to study how cells signal to one another so they can coordinate their actions to build tissues together. Due to the amount of genetic similarity to humans, the developing eggs inside of a fruit fly ovary are an excellent model to study these processes. By understanding how cells within this organism signal to one another and change shape, we can apply these findings to other more complex organisms like humans in order to understand how they develop, or even grow new organs in a lab for transplant. Similarly, since diseases such as cancer often involve cells that are no longer signaling correctly, researching these questions may identify how cancer cells operate. My hypothesis is that a specialized signal within the Bone Morphogenetic Protein signaling pathway is required for coordinating grouped movements of cells. Funded by NSF grant IOS-1355091 & UNLV GPSA.

Presentations: 75th Annual Society for Developmental Biology (August 2016)  
19th Annual International Society of Differentiation Conference (August 2016)
Presentations

9:00 – 9:15am  Mayara Aquino, Department of Civil and Environmental Engineering

9:15 – 9:30am  Sanjana Das, Department of Electrical and Computer Engineering

9:30 – 9:45am  Dale Karas, Department of Mechanical Engineering

9:45 – 10:00am Kazi Tamaddun, Department of Civil and Environmental Engineering

10:30 – 10:45am Shahab Taregh Tayeb, Department of Electrical and Computer Engineering

10:45 – 11:00am Sungchul Lee, Department of Computer Science

11:00 – 11:15am Chao Chen, Department of Civil and Environmental Engineering

11:15 – 11:30am Qi Shen, Department of Mechanical Engineering

11:30 – 11:45am Holly Martin, School of Life Sciences
Impacts of Ozone Dose and Empty Bed Contact Time on Bulk Organic Removal and Disinfection Byproduct Mitigation in Ozone-biofiltration Systems
Mayara Aquino, Daniel Gerrity | Civil and Environmental Engineering

Potable Reuse is a promising alternative to water supply augmentation in semi-arid regions where water shortages have been an emerging concern. Therefore, advanced wastewater treatment research is important to determine cost-effective technologies that assure acceptable water quality for surface water augmentation. The most common technology is the combination of reverse osmosis (RO) and advanced oxidation, a treatment train known as ‘full advanced treatment’ (FAT). Although FAT assures the removal of bulk organics for potable reuse levels established at a state level by the California Department of Drinking Water (Title 22), it also demands high costs due to energy consumption and waste disposal. Consequently, more cost-effective alternative technologies are needed in potable reuse.

Previous study has shown the ozone-biofiltration system to be a promising alternative to FAT due to less energy demand and significant bulk organics removal. However, more study is needed in order to determine optimum operational parameters.

The formation of disinfection by-products (DBPs) has been also a concern in potable reuse. DBPs are formed by the reaction between precursors present in water (mostly organics) and disinfectant. When free-chlorine is applied as disinfectant, trihalomethanes (THMs) and haloacetic acids (HAAs) can be formed, which are regulated in drinking water by the United States Environmental Protection Agency (USEPA) as 80 and 60 µg/L, respectively.

This research intended to investigate the impacts of different operational parameters in bulk organics removal and chlorinated DBPs mitigation/formation, as well as propose alternative guidelines for potable reuse through a pilot-scale study.

Presentation: International Ozone Association (August 2016)

Nanotechnology for Water-Less Cleaning of Solar Panels
Sanjana Das, Biswajit Das | Electrical & Computer Engineering

Clean energy technologies are the present focus for fulfilling the rising demand for energy across the globe. Whereas vast majorities of researchers are working on increasing the efficiency, far less investment and research have been done in addressing the externalities that can be a setback for the technology deployment.

One of the very important externalities among them is dust and airborne sedimentation on the solar panels over time. In order to clean the dust off the solar panels, most Photo Voltaic (PV) installations perform periodic water cleaning. However, as locations with higher annual solar flux are usually arid, there is a strong demand for water-less cleaning of solar panels. While some water-less cleaning technologies currently exist, primarily based on NASA’s lunar and mars expeditions, most of these techniques are expensive and not cost effective for large-scale PV power generation.

We are currently using nanotechnology to develop a process for the water-free cleaning of solar panels, which we believe will be cost-effective for large scale PV generation. The technology involves the use of arrays of transparent nanoparticles deposited on the solar panels using a low cost technique. The nanostructure arrays provide focused electric field to modify the electrical properties of the dust particles; the charged dust particles are then removed by electrostatic sweeping.

This work is supported by the National Science Foundation under Grant No. IIA-1301726

Presentation: ECS, New Orleans (May 2017)
Spectrally-Selective Copper-Oxide Spinel Absorber Coatings for High-Temperature Concentrated Solar Power Systems
Dale E. Karas, Jaeyun Moon, Cilla Jose, Samuel Tam | Mechanical Engineering

Concentrated Solar Power (CSP), in comparison to photovoltaic solar panels, involve methods to concentrate the sun’s energy onto receiver systems that generate steam, activate turbines, and consequently generate electrical power. To achieve cost-effective power generation, CSP implementation in solar-favorable geographic areas provides a competitive avenue in the market for energy production; additionally, the technology features storable energy at times of limited or null solar irradiance, higher energy conversion potential, and the ability to retrofit older nonrenewable-based power plant installations for a reduced environmental footprint. One significant technology for reliable high-temperature operation has been the application of durable solar absorber coatings on CSP receiver systems, using materials that favor ultraviolet, visible, and near-infrared solar irradiation responsivity while limiting spontaneous thermal radiation from emittance at higher wavelengths, correlating to a reduction of undesirable energy loss through waste heat. In this work, black metal-oxide nanoparticles comprising copper cobalt oxides and copper manganese oxides are synthesized for solar absorber coating potential by hydrothermal syntheses, selected for low-cost, energy-efficient fabrication capable for bulk manufacturability. The material is deposited onto high-temperature, durable Inconel substrates by a flexible spray-coating method, and characterization is performed by SEM, EDS, and XRD analyses, as well as measurements to gauge thermal performance. The solar receiver performance and high temperature stability are accessed by comparing spectral reflectance and the figure of merit (FOM) before and after high temperature exposure. This study ultimately showcases produced materials with high conversion efficiency, demonstrating solar absorber coatings capable of interfacing with CSP receiver systems.

Presentation: Materials Research Society (April 2017)
A Survey on Internet of Things Communication and Computation Frameworks
Shahab Tayeb, Shahram Latifi, YooHwan Kim | Electrical and Computer Engineering

This paper surveys fog computing and embedded systems platforms as the building blocks of Internet of Things (IoT). Many concepts around IoT architectures, with various examples, are also discussed. This paper reviews a high-level conceptual layered architecture for IoT from a computational perspective. The architecture incorporates fog computing to address several issues associated with cloud computing; however, it is never a binary decision between fog and cloud. Many of the world’s physical objects are being embedded with sensors and actuators, tied by communication infrastructures, and managed by computational algorithms. IoT sensor networks and embedded systems connecting smart objects are revolutionizing how we approach our daily lives, health care, energy, and transportation. Such computational needs are addressed with an array of various models and frameworks. In an attempt to consolidate the use of these models, this paper reviews the state-of-the-art research in IoT, cloud computing, and fog computing.

Presentation: IEEE Annual Computing and Communication Workshop and Conference (January 2017)

MapReduce - Data Science Applications
Sungchul Lee | Computer Science

MapReduce has been widely used in many data science applications. It has been observed that an excessive data transfer has a negative impact on its performance. To reduce the amount of data transfer, MapReduce utilizes data locality. However, even though the majority of the processing cost occurs in the later stages, data locality has been utilized only in the early stages, which we call Shallow Data Locality (SDL). As a result, the benefit of data locality has not been fully realized. We have explored a new concept called Deep Data Locality (DDL) where the data is pre-arranged to maximize the locality in the later stages. Toward achieving stronger DDL, we introduce a new block placement paradigm called Limited Node Block Placement Policy (LNBPP). Under the conventional default block placement policy (DBPP), data blocks are randomly placed on any available slave nodes, requiring a copy of RLM (Rack-Local Map) blocks. On the other hand, LNBPP places the blocks in a way to avoid RLMs, reducing the block copying time. The containers without RLM have a more consistent execution time, and when assigned to individual cores on a multicore node, they finish a job faster collectively than the containers under DBPP. LNBPP also rearranges the blocks into a smaller number of nodes (hence Limited Node) and reduces the data transfer time between nodes. These strategies bring a significant performance improvement in Map and Shuffle. Our test result shows that the execution times of Map and Shuffle have been improved by up to 33% and 44% respectively. In this paper, we describe the MapReduce workflow in Hadoop with a simple computational model and introduce the current research directions in each step. We analyze the block placement status and RLM locations in DBPP with the customer review data from TripAdvisor and measure the performances by executing the Terasort Benchmark with various sizes of data. We then compare the performances of LNBPP with DBPP.

Presentation: The 3rd IEEE International Conference on Data Science and Advanced Analytics (October 2016)
Development of a Groundwater Flow Model for Coupling with a Hydrologic Model
Chao Chen, Sajjad Ahmad, Ajay Kalra | Civil and Environmental Engineering and Construction

In order to better represent the hydrologic processes, and simulate the dynamic interactions between surface water and subsurface water, integrated hydrologic models are usually required. However, due to different temporal and spatial resolutions and shared processes, challenges usually occur when coupling the models. In this study, from the perspective of model development of groundwater flow system, the methods and concerns for a successful coupling with the surface hydrologic model Precipitation-Runoff Modeling System (PRMS) were discussed and addressed. By using the three-dimensional finite-difference groundwater model, MODFLOW, groundwater system was modeled for the Lehman Creek watershed, eastern Nevada. On the basis of hydrogeologic conditions and features, two layers of aquifers were defined with special discretization by 100 m×100 m grid, keeping a consistent computation-unit size as it is in the surface hydrologic model PRMS. A steady-state model calibration was performed with water balance calculation and geologic features, such as water recharges from surface hydrologic processes and discharges to springs, streams, and regions adjacent to the study area. Hydraulic properties and related model parameters were adjusted through several iterations until reasonable model estimates for water budget and boundary conditions were achieved. The modeling results well captured hydrogeologic patterns of springs discharge and groundwater outflows. Besides, the water head distribution followed the topography in the study area. This study provided insights to the development of groundwater system model considering the coupling processes with a surface hydrologic model, which laid foundation for future integration processes.

On the Shape Memory Polymer-Metal Composite Bio-Mimetic Actuator: Multi-Input Control
Qi Shen, Sarah Trabia, Tyler Stalbaum, Viljar Palmre, Kwang Kim | Mechanical Engineering

In current study, a multiple degree-of-freedom soft shape-memory ionic polymer-metal composite (MSM-IPMC) actuator was introduced, which is capable of being controlled by two external inputs, electrical and thermal. The SMPMC actuator demonstrates high maneuverability through control of two external inputs, allowing complex motions that can be observed in natural systems. Experiments were conducted on the SMPMC. The deformation, voltage, current and temperature of the SMPMC were measured simultaneously. The actuator can be used to mimic complex motion which could only be realized with existing actuator technologies through the use of multiple actuators or another robotic system.

Presentation: SPIE Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring (March 2016)
The ability of bacteria to adapt to a wide variety of environments depends on their capacity to alter gene expression or mutate DNA. During non-lethal stress, it is well established that bacterial cells radically alter gene expression patterns. It is also known that in stressed cells the mechanisms involved in copying DNA may produce mutations; for example, mutations conferring antibiotic resistance. This has led to the notion that stressed bacterial cultures develop hyper-mutable states. However, it has been demonstrated that unrestricted hypermutation occurring in all the genome leads to lethality. Then, how do bacteria manage to evolve in conditions of stress while avoiding lethal events?

Our previous work showed that Mfd, interacted with the process of gene transcription, promoted error-prone repair and the formation of mutations in transcribed DNA. We conducted experiments investigating the effect of Mfd on antibiotic-exposed cells in Staphylococcus aureus. Our experiments showed that Mfd deficiency resulted in a 40-fold increase in sensitivity to tetracycline without affecting cell viability. Interestingly, Mfd also was shown to affect sensitivity to antibiotics in Helicobacter pylori, another bacterial pathogen. Further, other reports have shown that Mfd impairs the ability of S. aureus to form biofilms. Because Mfd affected stress-associated phenotypes in the whole culture, our results suggest a role for Mfd beyond its DNA repair function. Based on the observations in B. subtilis, H. pylori, and S. aureus, we propose a novel role for Mfd as a transcription modulator in addition to its DNA repair function.

Presentation: Wind River Conference for Prokaryotic Biology (June 2016)
# Presentations

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>Levi Keach, Department of Anthropology</td>
<td></td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Bern Lee, Department of Psychology</td>
<td></td>
</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>Katelyn DiBenedetto, Department of Anthropology</td>
<td></td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>Shelly Volsche, Department of Anthropology</td>
<td></td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>Andrew Murtishaw, Department of Psychology</td>
<td></td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>Amber Osterholt, Department of Anthropology</td>
<td></td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Sarah MacIntosh, Department of Anthropology</td>
<td></td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>Kristen Herlosky, Department of Anthropology</td>
<td></td>
</tr>
</tbody>
</table>
Howdy Podner! The Strange Story of Soda Bottles on a Cold War Battlefield in Southern Nevada
Levi Keach | Anthropology

In 2016, Desert Research Institute archaeologists identified 26NY15768, an artifact scatter consisting primarily of Vegas Vic brand root beer bottles dating to 1953. 26NY15768 is located in Frenchman Flat on the Nevada National Security Site, known as the Nevada Proving Grounds at the time of deposition. The Nevada National Security Site, under various names, has served as the United States’ continental nuclear test site since it was withdrawn from the Las Vegas Bombing and Gunnery Range at the close of 1950. The location of this site is intriguing given the date. During 1953, two nuclear tests occurred on Frenchman Flat associated with Operation UPSHOT-KNOTHOLE. I describe the site and considers possible explanations for its existence. Evidence for and against each explanation is drawn from historical documents. This presentation is a condensed version of one recently presented before the Society for American Archaeology Annual Meeting.

Presentation: SAA Annual Meeting (March 2017)

[F-18]FDDNP Uptake, Neurocognition, and Number of Fights in Professional Boxers and MMA Fighters
Bern Lee, Charles Bernick, Vladimir Kepe, Frank DiFilippo, Sarah Banks | Psychology

Objective: Repeated concussive and sub-concussive blows have been linked to cognitive change. Some research suggests that these cognitive changes are pathologically linked to tau deposition, which can be characterized by Positron Emission Tomography (PET) through the use of [F-18]FDDNP radioisotope, which binds to tau among other proteins. The relationship between tau protein deposition, the extent of mechanical injuries to the brain, and ensuing cognitive function remains opaque. We report cognitive test data and PET imaging findings from a sample of professional fighters.

Participants and Methods: Eighteen active and retired male professional boxers and Mixed Martial Arts athletes completed a brief neurocognitive battery assessing memory, processing speed, attention, and executive functioning; and underwent PET imaging to assess for uptake of [F-18]FDDNP. We ran partial correlations accounting age between their number of fights and [F-18]FDDNP uptake for amygdala, striatum, thalamus, orbitofrontal cortex, and dorsolateral prefrontal cortex: regions shown to be targets for tau deposition in American football players. We computed partial correlations between uptake in these regions and performance on neurocognitive testing accounting for age.

Results: The relationship between number of fights and uptake of [F-18]FDDNP was non-significant for all neuroanatomic regions examined accounting for age ($p > .1$). Verbal memory false-positive errors were correlated with number of fights ($r = .49; p = .05$) and uptake in the orbitofrontal cortex ($r = -.517; p < .05$). Nonverbal memory false positive errors were significantly correlated with number of fights ($r = .50; p = .05$), but not with uptake in any neuroanatomic region.

Conclusions: These data do not show a relationship between [F-18]FDDNP uptake and extent of head injury exposure. The seemingly paradoxical relationship between age, verbal false-positive errors, and tau deposition are discussed.
Land and Water Management by Cyprus' First Farmers
Katelyn DiBenedetto | Anthropology

How do humans find solutions to problems dealing with issues related to land and water access, particularly in risky and marginal environments? This issue of land and water management strategies has been a central theme in anthropological and archaeological investigations, because it represents one of the enduring challenges that our species has had to face and continues to face today. My dissertation research uses Neolithic Cyprus (ca. 8,500/8,400-7,000/6,800 cal BC) as a case study for better understanding past management strategies, an issue which has been under-investigated. Current archaeological evidence suggests that Cyprus was the first permanently settled Mediterranean island. This occurred around 11,000 years ago during the Neolithic Revolution. Neolithic Cyprus presents a unique opportunity for investigating the management strategies of natural resources, because human groups had to bring all major economic resources with them to the island. The island, which is semi-arid, also has a number of physical and environmental constraints, including limited freshwater sources due to the unpredictability of rainfall. To begin to understand the nature of these management strategies, geochemical studies have been conducted on the plant remains from the site. The aim is twofold: 1.) Is there are any evidence that the crops have different watering strategies? and 2.) Is there any evidence that the crops were manured?

Setting the Childless Free: How Modernity and Intersectionality Converge in the Formation and Practice of a Childfree Identity
Shelly Volsche | Anthropology

The purpose of this talk is to discuss theory, movements, and historical context have contributed to the emergence, development, and practice of the childfree identity. A sociohistorical perspective of the childfree is considered, while acknowledging the relative novelty of the voluntary participation of men in the contemporary manifestation of this identity. Combining data from surveys, participant observations, and semi-structured interviews, this talk compares the many ways in which childfree individuals communicate and practice their identity. In so doing, it also explores how these individuals find purpose outside the traditional family and parenthood structures’ via pets, fictive kin relationships, and participation in a larger global society to define a meaningful life from a childfree perspective.

Presentation: Southwestern Social Science Association (April 2017)
Alzheimer’s disease (AD) is the most common form of dementia. Inflammation and insulin signaling perturbations have emerged as important risk factors associated with both AD. Data have also demonstrated an interaction between alterations in insulin signaling and inflammation. Many studies support the relationship between AD and metabolic disorders, particularly diabetes mellitus. Fractalkine (CX3CL1) is a chemokine that has been shown to protect the brain from the damaging consequences of chronic inflammation by interacting with its obligate receptor (CX3CR1) on microglia. Additionally, recent studies have demonstrated that the CX3CL1/CX3CR1 system plays a regulatory role in pancreatic β-cell function and insulin secretion. Our lab has previously demonstrated a low-dose, staggered administration of streptozotocin (STZ) results in hyperglycemia, cognitive impairments, and increased neuroinflammation. To further explore the relationship that fractalkine plays with insulin signaling we administered our low-dose, staggered STZ protocol in CX3CR1 knockout mice to evaluate if the alterations in AD-related pathologies and neuroinflammation. Animals were run through a standard health screen before beginning behavioral testing, which included open field and novel object recognition. Following completion of behavioral training, brains were removed for biochemical examination. The hippocampus and cortex were investigated for markers of inflammation, and cerebrovascular abnormalities, and other histopathological alterations relevant to AD.

Presentations: International Behavioral Neuroscience Society 2016 Annual Conference (June 2016)
Society for Neuroscience Annual Conference (November 2016)
Is There a Correlation between Sociopolitical Organization and Bone, Antler, and Ivory Technology?: Preliminary Data from the Central Anatolian Bronze and Iron Age site Kaman-Kalehöyük
Sarah MacIntosh | Anthropology

Archaeological excavations at the central Anatolian site of Kaman-Kalehöyük have revealed a cultural sequence including Early Bronze Age (EBA; Level IV, ca. 3000-2000 BCE), Middle Bronze Age (MBA; Level IIc, ca. 2000-1750 BCE), Late Bronze Age (LBA; Levels IIIa and IIIb, ca. 1650-1250 BCE), and Iron Age (IA; Level II, ca. 1200 BCE) materials. This sequence has yielded ample evidence for changes in architectural, metallurgical, and ceramic assemblages from the EBA through the IA. A fundamental question arising from these materials is whether these changes can be associated with complex interactions between various polities and ethnic groups such as the Assyrian Trading Colony and the Hittite Kingdoms. In this paper, I probe whether these diachronic trends are also identifiable in bone, antler, and ivory technologies at the site; I characterize bone and antler tools recently excavated from Kaman-Kalehöyük with the aim of filling spatiotemporal gaps in understanding how the evolution of bone and antler technologies relates to sociopolitical organization and ethnic identity in central Anatolia. Bone and antler technologies may form an independent and potentially valuable archaeological proxy to investigate sociopolitical change, and Kaman-Kalehöyük’s archaeological sequence provides a unique opportunity to explicitly and directly test whether correlations can be identified in central Anatolia between changes in technology on the one hand, and changes in sociopolitical organization and ethnic identity on the other.

Postpartum Maternal Mood among the Hadza
Kristen Herlosky | Anthropology

The postnatal period immediately following birth is a time of critical importance for both mother and offspring. Although the birthing experience is universal in the physiological sense, its manifestation is interdependent upon a unique set of biological, cultural, and psychosocial values. While there is a widely-cited prevalence rate of 10-25% globally for postpartum depression (see American Psychological Association 2016), a small number of studies have cited wide variation, from 0-60%. Previous research has largely focused on evolutionary origins and mismatch explanations for the onset of depression. Few studies, however, have directly addressed cross-cultural variation and intra-cultural diversity. Here, we present the first ethnographic investigation of postpartum maternal mood among the Hadza foragers of Tanzania. We administered the Edinburgh Postnatal Depression Scale (EPDS) to fourteen women, ranging in ages from 15-32, all with infants under the age of 12 months. Our results suggest that five of the fourteen women would be considered at a depressive state using 12 as the cut-off score. The mean average score of all responses were calculated (11.61%), placing Hadza women below average in relation to the scale administered among other populations (both small-scale and in the post-industrialized west). For the women who scored in the depressive mood range, follow up interview data was collected in order to determine how pregnancy and postpartum social support, as well as labor and delivery experience, might influence postpartum mood. These findings provide important cross-cultural ethnographic data that allows us to further explore variation and variable onset of postpartum maternal behaviors.

Presentation: Society for Cross-Cultural Research (March 2017)
<table>
<thead>
<tr>
<th>Time</th>
<th>Presenter</th>
<th>Program/Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>Courtney McDaniel, Department of Communication Studies</td>
<td></td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Genevieve Minter, Department of Sociology</td>
<td></td>
</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>Skyler Roper, Marriage and Family Therapy Program</td>
<td></td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>Jiabao Zhang, School of Social Work</td>
<td></td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>Tyler Snelling, Department of Communication Studies</td>
<td></td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>Marta Soligo, Department of Sociology</td>
<td></td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Erin Sullivan, Marriage and Family Therapy Program</td>
<td></td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>Josiah Kidwell, Department of Sociology</td>
<td></td>
</tr>
</tbody>
</table>
Social support and deception are both significant elements of close relationships. Social support involves verbal and nonverbal behaviors that are used when an individual is trying to help another person (Vangelisti, 2009). Research has suggested that friends in particular are one of the most enduring and irreplaceable sources of social support (Burleson, 1994; Burleson & Goldsmith, 1998; Floyd, 1995; Floyd & Parks, 1995). Thus, because friends comprise the strongest support system for many individuals, studying how deceptive communication functions within friendships could be very beneficial. Additionally, deception is another aspect of close relationships that cannot be avoided. Deception involves a deliberate perpetuation of false information (O’Hair & Cody, 1994). It is often the case that in attempting to provide encouraging social support to their friends, individuals may feel the need to be deceptive in their communication. Individuals may also simultaneously want to provide a supportive message, and often, the truth may not be the kindest version of support hence, when social support and deception intersect, a variety of tensions for a support provider may accompany it. The present study intended to reveal more about the process individuals undergo when deciding whether to provide honest or deceptive supportive communication to friends, coworkers, and acquaintances. Methods for the current study entailed a seven day diary study, in which participants recorded their social support provision experiences and the emotions surrounding each instance.

Montreal’s recent enactment of a pit bull ban sparked international outrage, but this is not the first instance of breed specific legislation. This paper begins by constructing the contemporary boundaries of breed specific laws, and uses theory by Joel Best and Cass Sunstein to explore how they exist in the context of media-induced moral panic. Using the media as a proxy, this paper utilizes content analysis of original media articles covering all dog bite-related fatalities in America from 2010 to 2014 (N=175) to test two hypothesis: 1) Incidents involving pit bulls will most likely be identified by the reporter than non-pit bull incidents. 2) Incidents involving pit bulls will most likely have criminal charges mentioned than non-pit bull incidents. Results did not support either hypothesis, and suggest there is no significant difference between the likelihood of being labeled a pit bull by authorities or reporters, (each of which stood an equal 45% chance) and being labeled a pit bull does not increase the likelihood of criminal charges being filed. Findings suggest that those most qualified to identify the breed (i.e. animal professionals) are less than 1% likely to do so. Future research should explore structural influences of moral panic and DNA methods of breed identification.

Presentation: SSSP Annual meeting (August 2017)
Coalitional Psychology and Political Preferences  
Skyler Roper, Dr. Stephen Fife, Dr. Ryan Seedall | Marriage and Family Therapy  

Due to the current high rates of divorce, many young adults have experienced the effects of parental divorce. Although a variety of research has investigated both the positive and negative implications of divorce for individuals, relatively little research has looked at the relationship effects of parental divorce. Yet divorce likely influences both parent-child relationships (especially with a non-custodial parent) and young adult romantic relationships. The purpose of this study was to explore more fully how parental divorce affects young adult relationships by investigating the relationship between divorce and parent-child relationship quality, perceived comfort within close relationships (i.e., attachment), romantic relationship satisfaction, and individual distress (depression, anxiety, and stress). Data analysis revealed that those who experience parental divorce are more likely to have lower parental regard, lower relationship satisfaction and they are 2.5 times more likely to experience relationship distress. Forgiveness may be necessary so that healing can take place and a positive relationship can be developed. Additionally, the use of Emotional Focused Therapy can be beneficial in resolving emotional needs from both the parent and the current romantic relationship. It is hoped that the results of this study can help identify specific intervention points for clinicians who work with individuals, couples, and families where divorce has occurred.

Presentation: American Association For Marriage and Family Therapy 2016 Annual Conference (September 2016)
An ELF in the Political Woods: Examining the Guilt of Eco-Terrorists
Tyler Snelling | Communication Studies

The Earth Liberation Front (ELF) was a radical environmental activist organization, which used the destruction of property as a primary tactic. At one time accused of being the top terror threat in the country and estimated to have caused millions of dollars’ worth of damage, the group achieved a unique status as an environmental movement. While previous research examines the organization’s lack of a leader and framing as eco-terrorists, minimal work has analyzed the rhetorical strategies within their primary documents. I examine ELF’s communiques or short press releases from Kenneth Burke’s theory of dramatism and, in particular, guilt redemption. Examining texts secretly sent to The North American Earth Liberation Front Press Office, an intermediate organization with no role in planning or conducting activism, for release reveals how ELF’s anonymity provided protection from police, but prevented them from positively framing their motive. Although ELF perceived themselves as protecting the earth and animals from violence, the elite’s framing of their actions proved too much for the organization to continue. This project condemns the damage inflicted by ELF, but examining the activists’ commitment to ecological justice is particularly warranted to combat the destruction stemming from climate change. Recovering their unabashed and polemical attack on corporations and polluters within the perspective of guilt generates a critical examination of our place within society as we inevitably confront the choice to act.

Las Vegas’ Mob Museum
Marta Soligo | Sociology

The opening of the Mob Museum on February 14, 2012 was a significant moment in representing Las Vegas’ controversial past. Attempting to answer the research questions “What is the social role of the Mob Museum” and “How do the museum’s employees, volunteers, and visitors perceive the mob?,” I conducted a twelve-month ethnography. I used unstructured interviews, observations, and the “walking with” method. The Mob Museum shows a new process of democratization, affirming its social function for both the community and the tourists. Creating engaging experiences with playful activities and entertainment-related events, the museum becomes an attraction suitable for a variety of audiences. Moreover, I found that curators and volunteers condemn organized crime and celebrate the success of law enforcement. Finally, I concluded that in a modern society that is feeling the effects of globalization and phenomenon like “non-places” and “non-authenticity,” museums “as sites of collective memory” look reassuring. They are safe places where to protect and preserve the local heritage. The Mob Museum communicate also what Las Vegas’ heritage is. A heritage that, although partially marked by organized crime, makes volunteers, employees, and local visitors proud of it, and which mirrors the values of the local community.

Presentation: International Council of Museums 24th General Conference (July 2016)
Religion and Sex Therapy: Constraints and Solutions in Providing Religiously-Sensitive Treatment for Couples
Erin Sullivan | Marriage and Family Therapy

Previous research highlights the influence of religious beliefs on sexual experience as well as the role of religion in whether couples attend therapy for sexual issues, exhibit resistance during that treatment, or complete treatment at all (Simpson & Ramberg, 1992). While traditional sex therapy interventions have displayed worth, they may not be as applicable or effective with all couples where religion is a factor. Both past and present religious beliefs play part in how couples view sex therapy and function throughout treatment, presenting therapists with unique obstacles in achieving positive treatment outcomes. A review of literature centered on couples therapy and sexual issues aided in identifying common themes in sex therapy cases related to religious beliefs. Some main themes which pose constraints in both seeking and successfully completing therapy for sexual issues include shame or guilt surrounding sexual acts or discussing sex, incongruent messages, permitted and forbidden sexual acts, expectations of sexuality and sexual expression, discrepancies between male and female sexual roles, control and accountability factors, and the nature of the relationship with God or a higher power. Upon considering the strength of these constraints and combining them with research and concepts from the field of marriage and family therapy, the author conceptualized practical solutions to approaching and successfully treating sexual issues with couples influenced by religious beliefs. With religion acting as an especially delicate subject for both clients and therapists in sex therapy, it becomes crucial to view religious beliefs as strengths and tools in order to develop and achieve religiously-sensitive interventions.

Sin City Religion: The Las Vegas Megachurch Experience
Josiah Kidwell | Sociology

In this project, I explore how technological saturation shapes the religious experience at New Life Christian Church: a megachurch in Las Vegas. Through participant observation, interviews, and semiotic analysis, my research attempts to answer three questions: 1) What are the functions of technology in the church? 2) What is the nature of this religious space and how do attendees experience it? 3) How do leaders organize the technological religious experience? I find that the technological nature of the space problematizes the traditional symbolic function of the religious setting. Through its complex technological system, the church transmits a religious message with a popular culture veneer. Additionally, this research explores how leaders use this dynamic and immersive environment to meet the audience’s experiential needs. I introduce the concept, immersive transcendent space to articulate how members feel technology functions as a resource for connecting with God. In the negative sense, I also find that technology serves to contend with the audience’s limited attention span. Finally, I show how leaders use multiple technologies to organize the worship service and how church attendees experience the space. This research contributes to scholarship on technology in contemporary society and on the experience of hypermodern religion.

Presentation: Society for the Study of Symbolic Interaction Conference (August 2016)
Presentations

9:00 – 9:15am  Evan Casey, Department of History

9:15 – 9:30am  Lenna Shulga, Department of Hospitality Administration

9:30 – 9:45am  Jorge Adrian Castrejon, School of Public Policy and Leadership

9:45 – 10:00am  Bridget Kelly, Department of Criminal Justice

10:30 – 10:45am  Alexa Bejinariu, Department of Criminal Justice

10:45 – 11:00am  Erika Masaki, Department of Political Science

11:00 – 11:15am  Mari Sakiyama, Department of Criminal Justice

11:15 – 11:30am  Anthony Jordan, Department of Political Science
Undressing MadMen: The Work of Janie Bryant in Historical Context
Evan Casey, Deirdre Clemente | History

Undressing MadMen places the costumes of AMC’s historical era serial drama, MadMen, in a broader historical context by considering three key facets of the development of the American fashion industry in the 1960s. The first is the increase of synthetic fibers, which fundamentally shifted how clothing was made. The public acceptance of manmade fibers such as Dacron, Orlon, and metallic threads, such as Lurex, is integral to the rapid growth of American consumerism that is a primary theme in the series. Fashion-forward characters such as Megan Draper wear synthetic fibers, while traditional dressers, such as Betty Draper, do not.

The second consideration is sportswear - a genre of dress that came into its own in the 1960s. From swimwear and tennis garb to polo shirts and cardigan sweaters, sportswear is pervasive in MadMen. The infiltration of sportswear into the American workplace is directly related to cultural change pioneered Southern California’s locale that receives increasing attention as the series progresses.

The third facet of change considered in this paper is the adoption of pants and mini-skirts by workingwomen in the late 1960s. Both garments challenged and changed gender norms in important and enduring ways. Bryant uses these garments to delineate between the old guard and the new.

Presentation: MadMen: The Conference, Middle State Tennessee University (May 2016)

The Role of Hospitality Brand Transparency and Authenticity on Co-creation Outcomes
Lenna V. Shulga, James A. Busser | Hospitality Administration

Building long-term relationships between customers and a company is important for maintaining company vitality. Consumer brand collectives, customer-to-customer networks and authentic experiences are significant influencers of hospitality consumers. However, there is a paucity of research exploring hospitality brand authenticity effects on long-term relationships between brands and consumer collectives. Therefore, the purpose of this paper is to address this gap by examining the role of a brand’s transparency and authenticity in building loyalty and trust between customers and a company through the value co-creation process, specifically when co-creating marketing campaigns. Theoretically the study is grounded in service-dominant logic (SDL) and social exchange theory (SET). The sample was comprised of 510 US Residents, 18 years old or older that were restaurant patrons. Subjects participated in an online scenario-based study, which utilized an existing consumer-generated advertisement (CGA) contest by a well-known coffee-shop brand to promote a summer dark roast coffee drink. Subjects observed the co-creation of CGA and provided their perceptions and expected outcomes. Structural equation modeling was used to examine the relationships between the latent constructs. Findings uncovered a significant impact of transparency on authenticity. Both authenticity and transparency played significant and positive roles on trust. Interestingly, only authenticity influenced loyalty. The theoretical contribution of this study is in merging SDL and SET through customer involvement with CGA from both the process and the resulting outcome. The practical contribution of this study is in understanding how increased brand transparency and authenticity can assist practitioners in building strong long-term relationships with customers.
Social Science and Hotel Platform Session C – Room 209
9:30 – 9:45am

**Jornaleros Engaged in a Multidimensional Struggle: A Critical Ethnography with Day Laborers in Las Vegas**
J. Adrian Castrejon | Public Policy and Leadership

Day labor work has spread across the United States as part of the secondary labor market, or what Cherrie Moraga describes as survival work. Day laborers in Las Vegas have become a significant part of this trend in the Southwest, where the highest rate of day laborers work. The National Day Labor Survey, the most comprehensive study with day laborers, reports that the day labor market is rife with abuse and violations of worker rights. But, the exploitation of this predominantly migrant workforce would not be possible if this workforce had the same rights as U.S. citizen workers in the primary labor market. Undocumented migrant workers from Mexico and Central America comprise 75% of the labor force in this labor market. Thus, this study examines the role of immigration status and the ways in which it contributes to the hardships of day labor work for migrant workers. Additionally, this study uncovers employer mistreatment of day laborers and the ways that they respond to mistreatment and law violations. Lastly, I challenge mainstream narratives that migrant workers, especially those from Mexico and Central America, are “poorly educated” and “low-skilled” and the ways in which these deficiency frameworks sanction and contribute to the exploitation of migrant workers while perpetuating xenophobia and discrimination. I employ testimonio and ethnographic methodologies at an informal hiring site, la esquina, in Las Vegas where jornaleros gather daily to seek work. The National Day Labor Survey, Critical Race and Latino Critical Theory, and Chicana feminist thought inform this study.

Presentations: Annual National Association for Chicana and Chicano Studies Conference (March 2017)
41st Annual Meeting of the Social Science History Association (November 2016)

Social Science and Hotel Platform Session C – Room 209
9:45 – 10:00am

**Using the Youth Assessment and Screening Instrument to IdentifyTraumatic History for Risk Classification and Case Management**
Bridget Kelly, Emily Salisbury | Criminal Justice

Approximately 60% of U.S. adults report having experienced trauma by way of one or more adverse childhood experience (ACE), but this rate is much higher in justice-involved populations of youth and adults. Research has suggested that ACEs may be a predictor of criminal behavior for youth and adults, though trauma has not traditionally been regarded as a key indicator of risk in “best practices” literature. To identify and target past traumatic events for case management, risk-needs assessments designed for criminal justice practitioners are beginning to include items that measure childhood exposure to trauma. One such assessment instrument is the Youth Assessment and Screening Instrument (YASI), which has demonstrated predictive validity for risk of offending with youth in Alberta, Canada as well as in Virginia, Illinois, and New York in the United States.

Using a sample of 1,962 youth referred to the juvenile delinquency department of a large Midwestern urban county, the current study examines the correlation between trauma-related assessment measures and re-offending with a minimum one year follow-up. Aggregate results demonstrate statistically significant positive correlations between total ACE scores and negative outcomes, including technical violations, new convictions, and detention. Results disaggregated by race and gender indicate several differences between groups with regard to these correlations. These results suggest that ACEs may be more appropriately regarded as a risk factor when prioritizing treatment needs in criminal justice populations, and that gender and race should continue to be a focus in future research in this area.

Presentation: American Society of Criminology (November 2016)
Civil Protection Orders: Identifying Factors Associated with a Successful and Longer PO
Alexa Bejinariu | Criminal Justice

Using data from ethnographic observations of a local public courthouse, the current study examines what factors influence an applicant’s likelihood of receiving a civil protective order (i.e., PO) and its length of time. More specifically, this research study examines whether: 1) courtroom actors (i.e., presiding judge, presence of legal counsel, translator, victim advocate, or informal support person); 2) case aspects (i.e., abuse mentioned, type of abuse mentioned, weapon mentioned, children mentioned, and session time); and 3) individual characteristics (i.e., presence of applicant and/or adverse party, and race and gender of applicant and of adverse party) influence an applicant’s likelihood of being granted a civil protective order and its length of time. Several bivariate and multivariate analyses were conducted to assess the impact of these factors on judicial decisions to approve of civil protective orders. Based on a sample of 303 cases, this study found that several of the independent variables had a significant impact on the likelihood of being granted a PO and its length of time. Implications for future DV research and victim’s short- and long-term safety are discussed.

Presentation: American Society of Criminology (November 2016)

Reserved Cooperation: Participation in Multilateral Environmental Agreements
Erika Masaki | Political Science

Since the signing of the Vienna Convention on the Law of Treaties in 1969, the use of reservations, or exemptions, in international treaties has been fairly common, particularly in human rights and trade agreements. Research is lacking, however, into the role of reservations in multilateral environmental agreements. The literature suggests that allowing countries to enter reservations will foster greater participation, particularly among countries that lack the capacity to comply with the terms of the agreement, and among countries that will not agree to all the terms because of cultural or ideological concerns. Consequently, this paper seeks to explain the relationship between the use (or lack thereof) of reservations in treaty design and participation in those treaties. Specifically, I hypothesize that the prohibition of reservations has a negative effect on participation in multilateral environmental agreements. The counterintuitive findings, however, suggest that while banning reservations does play a significant part in participation, other factors are also salient in determining treaty participation.

Presentation: International Studies Association Annual Conference (February 2017)
The Concept of Privacy and Public Perceptions of UAV Use for Domestic Surveillance
Mari Sakiyama, Joel D. Lieberman, Terance D. Miethe | Criminal Justice

Unmanned aerial systems (i.e., drones, UAV) have been used over domestic airspace by the Federal Government to assist first responders in a variety of operations. This assistance may have been requested, in part, because Federal Aviation Administration restrictions have slowed state and local agencies adoption of UAVs into their operations. However, recent changes in FAA policy allow non-Federal law enforcement agencies to more easily obtain FAA approval to operate UAVs. Despite this change, U.S. residents appear to have mixed feeling about the use of aerial drones within domestic airspace. Our previous studies suggest that public concerns about UAVs are strongly influenced by contextual factors (e.g., privacy concerns for the particular users of the technology and how it is being used). As an extension of this research, the current study employs a national survey to examine the influence of location of UAV use on public perceptions and support for various domestic surveillance activities. The findings will be discussed in terms of their implications for future research and public policy.

Presentation: American Society of Criminology (November 2016)

When is Non-Criminal Diplomatic Expulsion Used for Political Purposes
Anthony Jordan | Political Science

The research question for this project is “What would explain the variation in non-criminal diplomatic expulsions across countries and over time?” The theory was built by examining the actions of radical, populist left (New Left) executives in Latin America. They tend to make spectacles out of expelling diplomats from the United States despite the absence of any international convention requiring them to do so. This research argues that they do so to build upon their foreign policy promises as well as they anti-American rhetoric. Measuring expulsions as number of expulsion events per country/year; controlling for trade, official development aid; and U.N. voting similarity; and using negative binomial regression, this research suggests that the presence of a New Left executive in a Latin American country increases the likelihood of an expulsion of a U.S. diplomat.

Presentation: Southern Political Science Association Conference (January 2017)
Social Science
Platform Session D – Room 211

Presentations

8:45 – 9:00am  Wilisha Daniels, School of Public Policy and Leadership

9:00 – 9:15am  Michael Trevathan, Department of Political Science

9:15 – 9:30am  Logan Kennedy, Department of Criminal Justice

9:30 – 9:45am  Maryse Lundering-Timpano, Department of History

9:45 – 10:00am Matthew West, Department of Criminal Justice

10:30 – 10:45am Breanna Boppre, Department of Criminal Justice

10:45 – 11:00am Jonathan Birds, School of Public Policy and Leadership

11:00 – 11:15am Tereza Trejbalova, Department of Criminal Justice

11:15 – 11:30am Jonathan Bradley, Department of Political Science
Military Transitioning Programs and Civilian Life Preparedness: A Phenomenological Study about the Process of Transitioning out of the Military and into the Civilian Life
Wilisha Daniels | Public Policy and Leadership

In recent years, there has been an increase in transitioning programs for military personnel. Since the September 11 attacks on America, millions of U.S. troops have been deployed to the Middle East. The wars in Afghanistan and Iraq have jointly proved to be the longest running conflicts/campaigns in the history of the U.S. Over the past 15 years, approximately, 2.3 million servicemembers have served in the U.S. military during this conflict.

This study will investigate the process of transitioning of servicemembers from a perspective of acculturation. By exploring the lived experience of veterans, this study will attempt to gain a better understanding of the transition process of military servicemembers. The study will use the acculturation framework, including the concepts of integration, assimilation, separation, and marginalization as part of the servicemembers’ lived experience transitioning from military to civilian culture.

The acculturation perspective is not new to the field of research. However, there is limited research examining the connection between acculturation and transitioning for veterans. The phenomenological process of acculturation is often used to explain the lived experiences of individuals of different cultural backgrounds transitioning into another unfamiliar culture. Military members experience this phenomenon of acculturation due to the dual cultures they learn to exist in during and after their military service.

Crime Prevention in Apartment Complexes: What Works?
Logan P. Kennedy, Tamara D. Madensen, Kelly Schmidt | Criminal Justice

Police and place managers use a wide variety of interventions to block crime opportunities within multi-family housing facilities (e.g., tenant screening, management training, evictions, Crime Prevention through Environmental Design (CPTED) strategies, and code violation enforcement). In this paper, we use a method known as “conjunctive analysis of case configurations” (Miethe et al., 2008) to assess the impact of various combinations of interventions on apartment complex crime. This analysis is based on an exhaustive search and review of published descriptions and evaluations (in peer-reviewed and non-peer-reviewed outlets) of apartment complex crime reduction initiatives. Findings from this analysis will identify the most effective combinations of apartment crime interventions and offer insight into the mechanisms that create and suppress crime opportunities in these locations. This study also utilizes routine activities theory and the associated crime triangle as a method of organizing the approach. Interventions were coded based on whether they served to increase place management, target guardianship, or offender handling. Those apartment complexes that enacted interventions falling under all three sides of the crime triangle experienced the most success in crime reduction. This finding indicates that apartment crime reduction strategies targeting all three sides of the crime triangle are most likely to be successful.

Presentation: American Society of Criminology Annual Conference (2016)

Beers and Queers: The Foundations of the Las Vegas LGBT Community
Maryse Lundering-Timpano | History

In “Beers and Queers: The Foundations of the Las Vegas LGBT Community” Maryse Lundering-Timpano discusses how bar life was essential to the formation of Las Vegas’ LGBT community in the latter half of the twentieth century. Through previously conducted oral histories, that are available through Special Collections inside Lied Library, she was able to identify how these bars were established. The new residents to the city brought their previous experiences in other LGBT communities when they resettled. These new residents were responsible for opening the bars that played an important part in the formation of Las Vegas’ own LGBT community. The time frame of this paper begins in the 1950s and ends in the early 1980s prior to the AIDS crisis.

Presentation: Oral History Association Conference (October 2016)
How Cognitive Processing and Mexican Immigrant Defendants Relate to Capital Jurors’ Decisions
Matthew P. West, Emily F. Wood, Monica K. Miller | Criminal Justice

Capital jurors are expected to properly weigh aggravators and mitigators (i.e., factors that make the defendant more or less worthy of the death penalty) and ignore extralegal factors to arrive at an appropriate sentencing verdict. Bias might impede this ideal if verdicts and weighing are influenced by juror characteristics (e.g., cognitive processing traits) or irrelevant defendant characteristics (e.g., ethnicity, immigration status). In this 3 x 2 between-subjects experiment, mock jurors read a trial summary, endorsed aggravating and mitigating circumstances, rendered a verdict, and completed measures of cognitive processing. The defendant was a U.S. born Caucasian American, a documented Mexican immigrant, or an undocumented Mexican immigrant. Participants read a case either with high aggravators or high mitigators. Results demonstrated increased aggravator endorsement when the defendant was a documented Mexican immigrant defendant and an increased chance of a death penalty verdict when the defendant was an undocumented Mexican immigrant; though the former only occurred for participants lower in experiential processing and the latter only occurred for participants higher in experiential processing traits. In addition, experiential processing was generally associated with punitiveness, whereas rational processing was generally associated with lenience. Legal implications are noted and discussed.

Presentation: Annual Meeting of the American Psychology-Law Society (March 2017)

The Applicability of the Gendered Pathways Perspective towards Understanding Black Women's Experiences: A Path Analytic Approach
Breanna Boppre, Emily Salisbury, Patricia Van Voorhis | Criminal Justice

Since the late 1980s, a significant amount of research has been devoted towards understanding women’s distinct pathways to crime. However, the majority of this research has analyzed pathways using a general gendered framework that has not accounted for racial distinctions. More recently, feminist criminologists have called for attention towards understanding variation within gender, or experiences at the intersections between gender and race. As a few studies qualitatively examined pathways to crime among women of Color, we seek to expand upon this literature through a quantitative assessment of their pathways to crime. The current study uses a path analytic approach to examine how applicable the three gender-specific path models developed by Salisbury and Van Voorhis (2009) account for the experiences of Black women. We found that while Black women had similar gender-responsive risk factors, the indirect effects varied from the findings of Salisbury and Van Voorhis (2009). Theoretical and policy implications are also discussed.
Understanding Place Function, Openness, and Crime
Jonathan M. Birds, Tamara D. Madensen | Public Policy and Leadership

Land use studies have examined how the built environment affects routine activities, and also the opportunity for crime at proximal places like street segments (e.g., Weisburd et al. 2012), and pooled places like neighborhoods and census blocks (e.g., Taylor, 1995). This study builds upon this research to further understand the relationship among specific types of proprietary places (i.e., facilities - Eck, et al., 1997), the context in which these places are situated (i.e., proximal places), and crime. In this paper, we examine the possibility that particular proprietary place functions constrain place managers’ ability to control access and behaviors, and facilities with such constraints are more likely to promote crime within particular proximal place configurations. Using police crime data in Henderson, Nevada, we explore (1) crime concentrations among different facility types, (2) the extent to which these crime concentrations differ based on place function or level of “openness” (i.e., owners' ability/desire to control access), (3) the effect that high-crime, open places have on crime in nearby locations, and (4) whether different types of block configurations suppress or enhance the influence of high-crime, open places on proximal place crime patterns.

Presentation: Annual Meeting of the American Society of Criminology (November 2016)

Women Offenders' Criminogenic Risks and Needs: Examining the Utility of a Gender-Responsive Risk Assessment in the Czech Republic
Tereza Trejbalova, Emily Salisbury, Gabriela Slovakova | Criminal Justice

The status of justice-related women in the Czech Republic has not yet been extensively researched in academic literature. This research seeks to enhance literature on the needs of female offenders in the former Eastern Bloc, and reveal the feasibility of implementing the Women’s Risk Needs Assessment (WRNA) in the Czech Republic. The WRNA is a gender-specific risk and needs assessment tool that allows for addressing issues that are specific to justice-related women. First, this project includes close cooperation with a women’s prison in Svetla and Sazavou, Czech Republic where trained staff will pilot the WRNA with women inmates (n = 148). Results uncovered and described specific criminogenic and case management needs of the Czech justice-related women. Findings of the pilot study suggest that the majority of interviewed problem report issues related to employment and financial matters, antisocial friends, and depression symptoms. Furthermore, most of the sample exhibit strengths in the areas of parental involvement, family support, relationship supports, and self-efficacy.

Presentation: The American Society of Criminology, 72nd Annual Meeting (November 2016)
Jonathan Bradley | Political Science

The U.S. Congress operates best when it is able to reach compromises between the majority of members thus creating policy which serve the interest of the majority of the American people. Since the mid-1990s there has been a noticeable move from compromise politics in the Congress to party polarity politics where highly polarized parties vote in block. This has created high levels of acrimony in the U.S. Congress, but has allowed the basic legislative functions to continue. However, since the Tea-Party wave of 2010 there is a growing trend, mostly among a small group of Republican members in the House, of pushing ideological purity above party cohesion. This has caused an unwillingness to compromise within the Republican Party, and has grounded the legislation to a near halt. Ideological purity is a danger to the American political process. One of the few places one can observe ideological purity and an inability to compromise those beliefs is in certain Christian denominations. This paper examines the possible link between religious absolutist attitudes in certain Christian denominations with political absolutist attitudes on ideological purity in the U.S. House of Congress from 2010 to 2016 (the Tea-Party Years). I believe that there are several causal links between these denominations and groups which espouse absolutist belief systems and the majority of the members of the U.S. House who press an ideologically pure agenda. These links are most easily observed through voting records; caucus membership; biographical information on religious attitudes, membership, and participation; endorsements from religious themed political action organization; and religious rhetoric used in recorded House floor speeches.

Presentation: University of Nevada, Las Vegas, Political Science Research Colloquium Western Political Science Association (April 2017)
**Presentations**

8:45 – 9:00am  Rachel Part, Department of Educational Psychology & Higher Education

9:00 – 9:15am  Meredith Allard, Department of Teaching & Learning

9:15 – 9:30am  Wonjoon Hong, Department of Educational Psychology & Higher Education

9:30 – 9:45am  Elena Seymana Nourrie, Department of Educational Psychology & Higher Education

9:45 – 10:00am Megan Cogliano, Department of Educational Psychology & Higher Education

10:30 – 10:45am Refika Turgut, Department of Teaching & Learning

10:45 – 11:00am Marissa Nichols, Department of Educational Psychology & Higher Education

11:00 – 11:15am Vishe Redmond, Department of Teaching & Learning

11:15 – 11:30am Ezgi Yesilyurt, Department of Teaching & Learning

11:30 – 11:45am Donald Deever, Department of Teaching & Learning
Establishing the Invariant Natures and Exploring the Variable Relations of Value and Cost
Rachel Part, Matthew Bernacki, Gwen Marchand | Educational Psychology & Higher Education

We examined 334 undergraduate biology students’ perception of cost and value in a STEM course at three time points across the semester. We confirm measurement invariance across observed measures, and latent measures of value and cost at each time point. We also confirm that latent measures of value and cost distinctly factor into two unique constructs. Lastly, we investigate how perceptions of early cost investment relate to concurrent value and subsequent value and cost. Results indicate that initial cost investment early in the semester enhances students’ sense of investment in the course, thus increasing the value they perceive the course to possess. However, over time, perceptions of costs no longer predict greater perceptions of value by semester’s end.

Multimedia Reflections and Teacher Identity
Meredith Allard | Teaching & Learning

I am currently experiencing a change in my professional teacher identity from that of K-12 teacher to teacher educator. I spent one semester keeping a multimedia reflective journal as a way to make sense of my changing professional teacher identity in order to better my practice of teaching preservice teachers. How does my own teacher identity shape my practice when I’m instructing preservice teachers? How can I inspire preservice teachers’ who are already feeling the challenges of being educators in the 21st century to become the best teachers they can be? For the purposes of this self-study, the term multimedia reflective journaling refers to journaling using multimedia art materials, as well as the written word, with the specific intention of reflecting upon my evolving teaching identity. Keeping the multimedia reflective journal allowed me to make connections between my teacher identity and my teaching practices that I might not have made otherwise.
Ex comma ing Students’ Achievement Goals, Metacognitive Monitoring Behaviors, and Achievement Using Person-Centered and Data-Mining Approaches
Wonjoon Hong, Matthew Bernacki | Educational Psychology & Higher Education

Theories of motivation and self-regulated learning propose that students’ achievement goals influence the cognitive and metacognitive processes they undertake when learning. This paper uses person-centered methods to identify naturally occurring goal complexes held by students in a biology course and employs data mining methods to examine metacognitive learning behaviors observed in logs of events in a learning management system. Students with a primarily mastery orientation monitored their learning earlier and to a greater extent than students with equivalent performance goals; approach oriented students were more apt to seek feedback on their performance. Behavior patterns of mastery-oriented learners matched behaviors of the highest achievers, confirming the benefit of a mastery orientation for learning in the course.


The Indian Relocation Program and Students' Sense of Belonging
Elena Seymana Nourrie | Educational Psychology & Higher Education

The purpose of this presentation is to examine the ramifications of the Indian Relocation Program enacted by the US government in 1956 and its impact upon Native American students’ ability to succeed in higher education today. Considering how this federal policy has influenced Native American students’ sense of belonging within institutions of higher education allows professionals to gain understanding of this unique student population. This program offers professionals an opportunity to learn how to ensure that Native American students have an equal chance of thriving in their collegiate careers as institutions of higher education become increasingly diverse.

Presentation: American College Personnel Association Convention (March 2017)
Web-based Training to Improve Undergraduates’ Cognitive, Metacognitive, and Environmental Regulation Skills: Impact of Treatment Fidelity on Performance
Megan Claire Cogliano, Matthew L. Bernacki | Educational Psychology & Higher Education

This study examined the fidelity of a web-based intervention that taught cognitive, metacognitive, and environmental/behavioral strategies to biology undergraduates to better understand the specific combinations of skills and depth of processing required for increased academic performance in the classroom in a short amount of time. We used path analyses to examine the predictive effects of training specific skills, training to ensure specific depth of processing on exam scores to understand how skill training influences performance. The analyses reveals that cognitive strategies predicted immediate examination performance whereas, behavioral/environmental strategies predicted both immediate and lasting impact on examination performance. Metacognitive strategies alone did not predict exam performance. In addition, declarative and conceptual knowledge about the strategies during training increased both immediate (second exam) and lasting (final exam) performance. Declarative knowledge was more highly predictive of the second examination in comparison to conceptual knowledge. Whereas, conceptual knowledge was more highly predictive of the final examination performance. Application knowledge did not predict exam performance. A forward selection regression explored the nature of these predictions. Theoretical and practical implications of these findings are discussed.

Investigating How Linguistically Responsive Teaching Looks Like in a Real Course Setting with Preservice Teachers
Refika Turgut, Elif Adibelli | Teaching & Learning

With the demographic imperative of multilingual learners being the fastest growing population in the K-12 system, it has become essential that general education teachers across the content areas need the knowledge, skills, and dispositions for becoming linguistically responsive teachers. The Lucas & Villegas (2008; 2011) Framework for Preparing Linguistically Responsive Teachers has guided the field on the topology of what it means to be a linguistically responsive teacher and provided a roadmap for teacher preparation programs as well as professional development initiatives nationally. This study investigated to what extent linguistically responsive teaching framework (LRTF) was evident in a real course setting and explored what course component(s) were perceived influential on preservice teachers’ (PSTs) dispositions, knowledge and skills about ELLs and teaching ELLs in mainstream. Following the seven elements of the LRTF, data analysis revealed the course enabled the PSTs to develop the first five qualities of linguistically responsive teachers. The most positive finding of this study was the majority of PSTs started to consider themselves as responsible for teaching ELLs in mainstream. Regarding the last two elements of the LRTF, we could not find any evidence due the fact that the PSTs in the study did not have the opportunity to work with ELLs at the time of the study. Quantitative findings also supported qualitative data by showing statistically significant positive changes in PSTs’ knowledge, beliefs and attitudes regarding ELLs and SLA after their participation in the course.

An Examination of Differences in Division I FBS Student-Athlete Academic and Athletic Performance based on Internal Factors
Marissa Nichols | Educational Psychology & Higher Education

Today’s student affairs practitioner can benefit from understanding student-athlete development as it relates to performance, and specific internal factors that can be fostered and developed during a student-athlete's career. This study investigates the academic and athletic Mindset, Personal Growth Initiative, and experiences of over 325 Division I student-athletes from six Power 5 and Group of 5 institutions. Specifically, variations in Mindset, Personal Growth Initiative, and experiences among different categories/types of performers - 1) high academic/high athletic, 2) high academic/low athletic, 3) low athletic/high academic, and 4) low academic/low athletic. These internal factors have demonstrated positive attributes related to performance and well-being, but have not been used in this context or with this population. Based on the results, practical interventions that can be applied during a student-athlete's career are discussed.

Critical Race (Mother)Scholarship: Navigating the Triple Lens as a Multicultural Educator
Vishe Redmond | Teaching & Learning

One of the most persistent barriers academia has faced is the systematic silencing of mother's voices. Even though motherhood is an important topic in popular discussion, the concept of motherhood has been greatly isolated from academic feminism. Using research as resistance, I use concepts of mother-scholarship and critical race parenting to navigate my triple lens as a teacher, graduate student and mother. There are 3 goals of this research which is to define critical race parenting and mother-scholarship within my positionality and describe what radical mothering and teaching looks like for me from the perspective of a Black Feminist/Womanist, teacher, scholar and mother of a first grader and preschooler. Lastly, I will examine how critical race parenting influences my teaching.

I am influenced by the mothering work of Black Feminist pioneer, Patricia Hill Collins and June Jordan and I use feminist based research methods that give voice to my experience with autoethnography, reflective journaling, one on one meetings with advisors and mentors, self-interviews and counter stories. Parents can contribute to the cultural wealth of their children by giving verbal support, ongoing education in cultural values, worldviews, behaviors and relationships. Due to police violence at school and the school to prison pipeline, many African American families are using homeschooling as an act of educational resistance against the public school system. I will discuss my version of homeschooling and the goals I have for my children's educational plan. As a motherscholar of color, I am using my master's degree programming to build an alternative model of education grounded in my personal and professional relations with children and teens. I choose to create an educational experience that is holistic and speaks to my whole being instead of compartmentalizing myself.
This quantitative study explored whether teachers’ characteristics (gender, ethnicity, year in college, language proficiencies) create differences in their attitudes and beliefs/knowledge as to second language acquisition (SLA) and English language learners (ELLs). Participants were 256 general education pre-service teachers (PSTs) from large public university in Southwest U.S. Demographic questions coupled with 30-item questionnaire measuring attitudes and belief/knowledge concerning SLA and ELLs was used. Data analysis via Kruskal-Wallis test illustrated PSTs’ attitudes significantly varied by gender and language proficiencies and their belief/knowledge significantly varied by year in college. Specifically, female PSTs and PSTs who were multilingual held more positive attitudes. PSTs at senior-level had more positive beliefs and higher level knowledge. Besides, PSTs’ attitudes slightly but not significantly differed by ethnicity.


While conventional scholarly protocol recommends that research references should be no older than five to ten years, when it comes to the topic of teaching math, researching ancient textbooks reveals that some of the oldest ideas may be the best. Such ideas include the Egyptian method of duplation, which is a multiplication technique that allowed ancient architects to multiply extremely large numbers (big enough to build entire pyramids) without their practitioners having to memorize a single multiplication fact. In this evidence-based best practice presentation, conference attendees will rediscover their own personal original digital calculator, gain potential insights into where the new math has erroneously veered away from some of the time-tested wisdom of old, and show that math is an art form where numbers are composed of beautiful but logical patterns than when recognized, make problem-solving fun. This research also introduces an entirely new alternative concept developed by the presenter for enhancing multiplication instruction for learners in a way that requires no carrying of numbers when conducting simple multiplication exercises of two-digit numbers multiplied with one-digit numbers.

Presentation: Conference on Academic Research in Education (January 2017)
Humanities and Fine Art
Platform Session A – Room 218

Presentations

9:15 – 9:30am  Dafne Guevara, Department of Music

9:30 – 9:45am  Holly Lay, Department of Art

9:45 – 10:00am Phillip Harris, Department of Music

10:30 – 10:45am Matthew Kolmer, Department of English

10:45 – 11:00am Diogo Jose Rocha Ferreira, Department of Music
The Consummate Flutist: A Growing Experience
Dafne Guevara | Music

Last summer, I had the privilege to be selected as a performer at The Consummate Flutist 2016 with world renowned flutist such as Alberto Almarza, Jeanne Baxtresser, Lorna McGhee, Soo-Kyung Park and Marianne Gedigian. During this intense week, I also received lesson on my instrument, and several lectures about a professional audition process, about summer camps audition process, about job interviews, and about my body. As a result, I became more aware of the details that will help me in the future to become a successful musician, flutist and person.

As a Flute Performance DMA student, this experience was very important because I had the opportunity of learning from other talented flutists who played several composer’s pieces with such a skill that inspired me to work even harder. Consequently, my understanding of music and sensitivity also change in a positive way. I could comprehend the different approaches in which the same piece can be interpreted.

In addition, the fact that I was selected as performer in an open masterclass also helped my confidence and artistry. As musicians, we struggle a lot with our fears and to know that you have been selected after a hard audition process help us enjoy even more our craft and motivate us to share our passion, respect and love for music. Such an experience help us to be certain that our sacrifices are worth of and that if we do it in a humble way, we can achieve our goals.

In this lecture, I will guide you throughout the process I had to go throughout to be selected for such an important event. Furthermore, I will share how I was able to incorporate all I learned to motivate my peer and how my students at UNLV have benefit from the teaching technique I acquired.

Digitizing the Case Study: Middletown Studies
Holly Lay | Art

I applied for funding to help complete a project involving the digitizing of several dozen found 8mm film reels. These reels came from a family in Muncie Indiana that include travels, holidays, pets and parties. The films were created in the 1960s during a decade of change. Muncie Indiana is significant for its famous sociological case study called the Middletown studies. In brief, this explored the sociological and economical changes of a typical American city after the industrial revolution. Much of my work is about an interest in identity and its evolution in society since the invention of the camera. When people gained the ability to document their lives, they began to curate how others would see them. Often this is done by dressing up for the camera and choosing which moments to share with others. This is particularly true today with social media and the invention of the camera phone. Documentation of our lives is now such a common practice it has become banal. Digitizing these films will not just change their format but change the way their content is perceived. The order can be rearranged and the identity of this family curated into a new meaning in our modern era.
The Importance of Studying Black American Art Songs
Phillip Harris | Music

Black American classical musicians and composers date back to the late 18th century and still exist vibrantly to the present day, yet little is known about these compositional works and musicians in music circles when the topic of classical music by American artists arise. Perhaps much of this is due to a lack of education or quite possibly because of the marginalization of Black Americans in American society for so many years. Nonetheless, it has become the task of countless performers, scholars, the litterateur and composers to enlighten communities of the rich outpour of classical compositional work as told from the Black American perspective. Attending this conference with experts in this field from all over the world, it was delightful to see a diverse body of ethnic backgrounds colliding for a common cause. I walked away with a far greater understanding and appreciation for this topic in which I have geared my doctoral research. For the last twenty years, it has been the goal of the African-American Art Song Alliance to preserve, educate and promote the classical music of Black American composers to the public. The presentation I am offering will do the same in highlighting not only the information I have found in this specific study over the last several years, but more importantly what I learned in the three days attending the conference as I was delightfully inundated with insightful lectures, performances, rehearsals and film screenings.

Presentation: The African-American Art Song Alliance (February 2017)
International Clarinet Competition, Ghent
Diogo Ferreira Rocha Ferreira | Music

Organized by the International Music Promotion vzw*, the prestigious biennial International Clarinet Competition, Ghent, is now on its 4rd edition and it aims at discovering, promoting and supporting young talented artists, giving them the necessary tools to launch an international music performance career. As its name implies, the competition will take place in Ghent, Belgium, an architectural masterpiece located in the heart of Europe. The event will be held from April 10th to April 22nd, and it is open to all Clarinet players, regardless of nationality. Judged by 13 world-renowned soloists and professors, the competition is divided in four rounds that encompass the musical performance of clarinet masterpieces from the classical to the postmodern period. The preparation process to participate in this competition is highly demanding due to the abundant amount of required repertoire and its difficulty.

Music competitions play a crucial role in the performing arts field by providing a public forum that identifies the strongest performers and contributes to the establishment of their professional careers. It is important to mention that performing arts schools’ reputation greatly depend on its student’s achievements outside of the academic circle. It will be a great honor to be the first UNLV student to participate in this competition, internationally exposing an example of its musical practice and realizing how viable it is, in an environment where I can collect a variety of feedback from peers and leading professionals from around the world.
Science and Engineering Poster Session A – Ballroom

Presentations

8:45 – 9:00am (#1) Sahar Ehsani, Department of Civil and Environmental Engineering and Construction

9:00 – 9:15am (#2) Sogol Pirbastami, Department of Mechanical Engineering

9:15 – 9:30am (#3) Lynette Kogler, Department of Chemistry

9:30 – 9:45am (#4) Matin Pirouz Nia, Department of Computer Science

9:45 – 10:00am (#5) Sungchul Lee, Department of Computer Science

10:30 – 10:45am (#6) Samad Gharehdaghimollahajloo, Department of Mechanical Engineering

10:45 – 11:00am (#7) Cheng Chen, Department of Physics and Astronomy

11:00 – 11:15am (#8) Russell Harkanson, Department of Computer Science

11:15 – 11:30am (#9) Syeda Saria Bukhary, Department of Civil and Environmental Engineering and Construction
1. Physical, Chemical, and Biological Cycling of Selenium in Las Vegas Wash
Sahar Ehsani, David James. Vernon Hodge | Civil and Environmental Engineering and Construction

Selenium bioaccumulation in the food chain causes dietary selenium exposure to aquatic organisms and their predators. Selenium bioaccumulation is strongly affected by the speciation, or different chemical forms of selenium. Recently, there have been concerns over the elevated concentrations of Selenium in the tributaries that feed the main stream Las Vegas Wash. Therefore, studying biogeochemical cycling of Se speciation is important in order to help understand the processes that affect the transformation of Se speciation and their potential accumulation or release affecting Las Vegas Wash water quality. In this study, the fate and transport of various forms of Se and underlying mechanisms (i.e., chemical, biological or hydrological) in the Las Vegas Wash water column and sediments is studied by field data collection and laboratory analysis. The main goal of the research is to understand the distribution and concentration of selenium in sediment profiles of Las Vegas Wash; determine the mechanism which affect the movement of selenium between water column and sediments; determine whether the sediment profiles are acting as sink or source for various species of Se (i.e., selenite, selenite, selenide and elemental selenium).

2. Effect of Groove Dimension on Thermal Performance of Turbulent Fluid Flow in Internally Grooved Tube
Sogol Pirbastami | Mechanical Engineering

A Computational Fluid Dynamics (CFD) study of heat enhancement in helically grooved tubes was carried out by using a 3-dimensional simulation with the STARCCM+ simulation package software. The k-μ model selected for turbulent flow simulation and the governing equations were solved by using the finite volume method. Geometric models of the current study include 3 rectangular grooved tubes with different groove width (w) and depth (e) which varies from 0.2 mm to 0.6 mm for the same tube length of 2.0m and diameter of 7.1 mm. The simulations were performed in the Reynolds number (Re) range of 4000-10000 with a uniform wall heat flux of 3150 w/m^2 applied as a boundary condition on the surface of each tube. The purpose of this research is to investigate the effect of different groove dimensions on the thermal performance and pressure drop of water inside the grooved tubes and clarify the structural nature of the flow in regards to flow swirl and turbulent kinetic energy distributions. It was found that the highest performance belongs to the groove with these dimensions (w=0.2 mm and e=0.2 mm) which was considered for further study. Then, for these same groove dimensions four pitch size to tube diameter (p/D) ratios ranging from 1 to 18 were simulated for the same 2.0 m length tube. The results for Nusselt number (Nu) and friction factor (f) showed that by increasing the (p/D) ratio both the Nu numbers and the friction factors (f) values decrease. With a smaller pitch length (p) the turbulence intensity generated by the internal groove was also found to increase. The physical behavior of the turbulent flow and heat transfer characteristics were observed by contour plots which showed an increasing swirl flow and turbulent kinetic energy as p/D decreases. With an increase of the Nu number for smaller p/D ratio, a penalty of a higher pressure drop was obtained. The results were validated with a previous experimental work and the average error between the experimental and CFD Nu numbers and f were 13% and 8% respectively. A higher level of turbulent kinetic energy is observed near the grooves, as compared to the smooth areas of the pipe surface away from the grooves, which are expected to lead to higher levels of heat transfer. The effect of pitch length (p) on the flow pattern were plotted by streamlines along the tubes, by decreasing the pitch size (p/D ratio) an increase in the swirl is noticed as evidenced by the plots of the path lines. Finally, empirical correlations for Nusselt number and friction factor were provided as a function of p/D and Re number. This study indicates that the incorporation of the internal groove, of particular dimensions, can lead to an improvement of performance in heat exchanger devices. A limited variation of the groove dimensions was conducted and it was found that the values of Nu and f do not improve with an increase of (w) nor with that of (e) from 0.2-0.6 mm.
3. The Use of Solution-Processed Organic Materials in Printable Electronics
Lynette Kogler, Marc HaÅ Ming, Clemens Heske | Chemistry

Solution-processed organic materials are appealing for use in printable electronics as a means to lower production costs, but precise control of the process is crucial for achieving the desired properties in the final material. Electronic interface properties depend on both the material and the fabrication process, impacting the development and commercialization of organic electronic materials. This research explores the surfaces of and the interface between two materials widely used in organic electronics: poly (3,4-ethylenedioxythiophene) polystyrene sulfonate (PEDOT:PSS) and indium tin oxide (ITO). Spin coating was used to make thin films of both PEDOT:PSS and ITO, the latter made with a metal-organic precursor solution. PEDOT:PSS films were applied to substrates of solution-processed ITO and commercially produced ITO and characterized using photoelectron spectroscopy techniques. Inhomogeneities in the PEDOT:PSS films have been observed within individual samples. The impact of these on the surface electronic properties and the implications for organic electronic devices will be discussed.

Presentations: American Physical Society (APS) March Meeting (March 2017)
American Chemical Society (ACS) 253rd National Meeting (April 2017)
SciMix (April 2017)

4. Node Reduction in Personalized Page Rank Estimation for Large Graphs
Matin Pirouz Nia, Justin Zhan | Computer Science

This paper proposes an algorithm called optimized relativity search to reduce the number of nodes in a graph when attempting to decrease the running time for personalized page rank (PPR) estimation. Even though similar estimations have been done, this method significantly increases the speed of computation, making it a feasible candidate for large graph solutions, such as search engines and friend recommendation techniques used in social media. In this study, the weighted page rank method was combined with the Monte-Carlo technique and a local update algorithm over a reduced map space; this algorithm was developed to achieve a more accurate and faster search method than FAST PPR. The experimental results showed that for nodes with a high degree of incoming nodes, the speed of estimation was twice as fast compared to FAST PPR, at the expense of a little accuracy.
5. Investigation of Nano Cementitious Composite Incorporating with Single-Walled, Multi-Walled, and Hybrid Carbon Nano-Tubes
Robabeh Jazaei, Moses Karakouzian, Brendan O'Toole | Department of Civil and Environmental Engineering and Construction

The application of Carbon Nanotubes (CNTs) in cementitious materials is a newly emerging field; the literature in the construction industry is under development. It is justified then to investigate further CNTs in nano cementitious composites. There is not much literature to draw upon in research. However, while it is known that CNTs cementitious composites are not nearly as strong under tension, the literature currently available focuses on compression strength. There is few worked on improvement of compression strength in CNTs cementitious concrete. CNTs’ hollow structure and high aspect ratio causes CNTs to undergo buckling when placed under compressive, torsional, or bending stress. However, standard Single-Walled Carbon Nanotubes (SWNTs) can withstand pressures of up to 25 GPa without [plastic/permanent] deformation. Therefore, investigation of CNTs composites is crucial in evaluating the mechanical properties of CNTs. Although a number of papers are presented about Multi-Walled Carbon Nanotubes (MWNTs), none of them investigates SWNTs, compares SWNTs with MWNTs, or hybrid CNTs (SWCNT and MWCNT). Therefore, the aim of this research is to investigate the mechanical properties of cementitious composite with SWCNT, MWCNT and hybrid CNTs additive include compression, and impact test.

6. A Microsoft Excel-based Software for Sizing Rooftop Photovoltaic Systems
Samad Gharehdaghimollahajloo, Robabeh Jazaei | Mechanical Engineering

Replacing fossil-fuel with renewable energies reduces human-induced greenhouse gases (GHGs) and other air pollutants considerably. Among a wide range of renewable sources photo voltaic solar systems are proved to be one of the best alternatives for fossil fuels. In particular, in regions with high levels of yearly averaged solar irradiance and low wind energy capacities, like Las Vegas, PV is unbeatable. Low operating costs, abandon solar radiation, and minimal non-solar inputs make PV a unique candidate for fabulous Las Vegas.

A key step in designing a PV system is sizing the system. Design engineers should use meteorological data of the project site and the technical specifications of the PV panels in order to estimate the size of system. Although a number of software packages are available in the market, solar companies would rather to develop their own software. However such a software package is typically sophisticated due to large number of contributing variables. The aim of this research is to provide a user friendly program using Microsoft Office Excel that sizes rooftop PV systems and estimates their hourly, daily and monthly generated power. Additionally, this software does a feasibility analysis based on the banking scenario chosen by the user. The results of this software are validated by PVWATTS software package as the reference software package of NV Energy.
7. **Regular Satellite Formation and Evolution in a Dead Zone**  
Cheng Chen, Rebecca Martin | Physics and Astronomy

The dead zone in a circumplanetary disk is a non-turbulent region at the disk midplane that is an ideal location for regular satellite formation. The lower viscosity in the dead zone allows small objects to accrete and grow. We model the evolution of a circumplanetary disk with a dead zone for a range of disk and dead zone parameters. We investigate how these affect the formation and subsequent evolution of regular satellites that form in the disk.


---

8. **Applications of Elliptic Curve Cryptography**  
Russell Harkanson, Yoohwan Kim | Computer Science

Elliptic curve cryptography (ECC) is a relatively newer form of public key cryptography that provides more security per bit than other forms of cryptography still being used today. We explore the mathematical structure and operations of elliptic curves and how those properties make curves suitable tools for cryptography. A brief historical context is given followed by the safety of usage in production, as not all curves are free from vulnerabilities. Next, we compare ECC with other popular forms of cryptography for both key exchange and digital signatures, in terms of security and speed. Traditional applications of ECC, both theoretical and in-practice, are presented, including key exchange for web browser usage and DNSSEC. We examine multiple uses of ECC in a mobile context, including cellular phones and the Internet of Things. Modern applications of curves are explored, such as iris recognition, RFID, smart grid, as well as an application for E-health. Finally, we discuss how ECC stacks up in a post-quantum cryptography world. This research is important for information assurance, including data secrecy through cryptography and integrity. The principals of information assurance, in general, are the foundation that allows people to send and receive private messages digitally, with one of the most recognizable applications being, but certainly not limited to, online banking, where data must remain private between the bank and the account holder. By continuing research in cryptography we can further improve theory and practice for the future.

Presentation: Cyber and Information Security Research Conference (April 2017)
Potable water generation, which is vital for protection of public health, is an energy-intensive process. Carbon emissions caused by fossil-fuel based energy generation, as well as escalating energy costs warrant the use of renewables for generation of energy for treatment of drinking water. The objective of this study was to analyze the feasibility of using distributed solar to fulfill the energy requirements of a 10 MGD drinking water treatment plant (DWTP), situated in the southwestern United States. The DWTP treated groundwater using inline filtration treatment train that involved coagulation and filtration processes and employed chlorination for disinfection. Energy consumption was determined for each process using industry-accepted criteria. Based on the energy consumption of the DWTP and the existing land acreage, the DWTP was sized for distributed photovoltaics (PV) using System Advisor Model. Results showed that land availability was sufficient to meet PV deployment. Energy consumption for the water intake pumps, water treatment plant and the booster pumps for water storage was found out to be 50.1 MWh/day, 118.7 kWh/day and 2.6 MWh/day respectively. A 28.8 kWdc, 777.5 kWdc and 15 MWdc PV system was designed to meet the energy requirements of the treatment plant, the booster pumps and the water intake pumps respectively. PV-based design resulted in a net carbon emissions reduction of 2.4 million kgCO₂ eq/day. For future work, this methodology can be applied to other DWTP for achieving sustainability goals by incorporating renewables as a source of electricity generation.
Science and Health Science
Poster Session B – Ballroom

Presentations

8:30 – 8:45am  (#10) Quynh Bui, School of Dental Medicine
8:45 – 9:00am  (#11) Kendell Galor, Department of Kinesiology and Nutrition Sciences
9:00 – 9:15am  (#12) Suzanne Wen, School of Dental Medicine
9:15 – 9:30am  (#13) Nicole Millick, Department of Chemistry
9:30 – 9:45am  (#14) John William Collins, School of Dental Medicine
9:45 – 10:00am (#15) Steven McDaniel, School of Dental Medicine
10:30 – 10:45am (#16) Steven Dirk Bunker, School of Dental Medicine
10:45 – 11:00am (#17) Samuel Oh, School of Dental Medicine
11:00 – 11:15am (#18) Scott Thomas, School of Life Sciences
11:15 – 11:30am (#19) Brock Nelson, School of Dental Medicine
10. *Selenomonas noxia* Screening among Pediatric Patient Samples: A Pilot Study
Quynh Bui, Chanel Nguyen, Jaydene McDaniel, Steven McDaniel, Karl Kingsley, Katherine Howard | Dental Medicine

**Purpose:** Recent work from this group has resulted in the development and validation of the first qPCR assay designed specifically to detect *Selenomonas noxia* from clinical patient samples. *S. noxia* has been associated with periodontal disease and gastric ulcers and may be associated with obesity in some individuals. The objective of this study was to evaluate the prevalence of *S. noxia* among clinical pediatric saliva samples from an existing dental school-based repository.

**Methods:** Using an IRB-approved protocol, an existing saliva repository was screened to identify pediatric patients (n=162). Of the samples identified, DNA was successfully isolated from n=54 samples for qPCR analysis. An internal positive control (IPC) was used in samples to determine true negatives from qPCR inhibition.

**Results:** The qPCR screening revealed that none of the pediatric patient saliva samples harbored sufficient *S. noxia* for detection, although an analysis of adult patient samples yielded positive results. The vast majority of pediatric samples were derived from minority (Hispanic) children (68%). No significant differences in gender were found.

**Conclusions:** Although the data from this study was limited due to the restricted size of the existing saliva repository, these data suggest that the recently developed qPCR assay can be used to successfully screen for the presence of *S. noxia* from clinical patient saliva samples. These data also suggest that other factors, including age and the presence of other oral microorganisms that may potentially out-compete *S. noxia* in pediatric patients, may influence these results. Further research is needed to elucidate these observations.
Orthodontic tooth movement requires coordinated bone resorption and deposition. Underlying this process is a complex network of biological signaling to activate osteoblasts and osteoclasts. One of the signaling factors is Interleukin-1 Beta (IL-1β), which plays a critical role in inflammation and bone erosion via the activation of osteoclasts. Although there are many studies on IL-1β and its receptors, relatively little research has focused on its role during orthodontic movement. Following orthodontic force activation with braces, there is no established timeline of cytokine activation. Our goal is to gain further knowledge about the temporal initiation of cytokine proliferation, specifically IL-1β, IL-17, and TNF-alpha, and the timing of peak proliferation during initial stages of orthodontic tooth movement.

GCF samples were collected 1, 6, and 24 hours after initial orthodontic activation on 9 patients. Patients returned in 5-7 weeks for their 1st retie activation visit. GCF samples were collected again at the same time intervals. GCF volumes will be assessed with a Periotron 6000 (OraFlow, Smithtown, NY). A Bradford assay will be performed to obtain total protein levels [12]. Analysis will include an MILLIPLEX MAP assay kit (Millipore, Billercia, MA) to detect IL-1β, IL-17, TNF-alpha and OPG levels in the GCF samples in the tension and compression sites.

Science and Health Science Poster Session B – Ballroom 9:15 – 9:30am

### 13. Faculty and Graduate Student Perceptions of Factors that Contribute to the Success of an Interdisciplinary Collaboration Focused on Bridging the Educational Research Practice Gap: The ChANgE Chem Project
Nicole Millick, Sabrina Barakat, MaryKay Orgill | Chemistry

The current number of engineering students is not adequate for meeting the needs of the projected workforce. The ChANgE Chem project is focused on increasing the retention of engineering students in their introductory chemistry courses through the development and implementation of recitation modules that situate chemistry concepts in real-world problems that emulate and make explicit an engineer’s ways of thinking, knowing and working. This project is currently implemented at a Florida University and continues to evolve and expand. To achieve the goals of the project, an interdisciplinary team consisting of faculty members, instructors and graduate students from education, engineering and chemistry disciplines was convened. Although many interdisciplinary collaborations are not successful for a myriad of reasons such as communication issues and language discrepancies, this collaboration was successful in both working together and achieving its common goals. We interviewed the five faculty members and four graduate students participating in this interdisciplinary collaboration in order to determine their perceptions of the factors contributed to their success. Good communication, trust and shared goals were among several themes that the collaboration members cited as achievements. In this presentation I will discuss these factors.

Presentation: Biennial Conference on Chemical Education (August 2016)
14. Establishment of an Optimized Method for Screening the Interleukin-1β (+3954) Gene Polymorphism
John Collins, Satyaprasad Nayak, Brian Chrzan | Dental Medicine

IL-1β is a proinflammatory cytokine involved in initiating and propagating immune and inflammatory reactions. IL-1β polymorphisms have been implicated in chronic periodontitis, root resorption, oral aphthous stomatitis, burning mouth syndrome, and osteosarcoma. Specifically, the single-nucleotide polymorphisms (SNPs) of the IL-1β gene at +3954 have been reported to alter the amount of IL-1β production. Models have been proposed where alterations in the level of IL-1β expression may result in an individual’s predisposition to a particular disease.

Objectives: To optimize a DNA isolation and analysis protocol to identify IL-1β +3954 allelic variations on a large scale. A standardized and efficient technique will allow for large scale adoption in both large medical and dental care facilities and small practice settings.

Methods: Samples for DNA analysis were collected by scraping the inside of the cheek with a sterile nylon bristle brush. Genomic DNA was obtained from these samples with the Puregene method (Gentra Systems). PCR amplification of a region encompassing the +3954 site was performed, followed by TaqI digest. PCR products and digested fragments were separated by agarose gel electrophoresis, stained with ethidium bromide and visualized under ultraviolet light.

Results: Isolation of genomic DNA from buccal cheek cells resulted in a higher yield than isolation from saliva. The digested PCR products were detectable and specific to each allele at +3954 C/T. The fragments of 85 bp and 97 bp corresponded to +3954 C and a single 182 bp fragment corresponded to +3954 T.

Conclusions: This optimized protocol is suitable for identification of homozygous and heterozygous polymorphisms at IL-1β +3954 C/T. This method is suitable for use on a large scale and will serve as the basis to develop protocols to detect other inflammatory cytokine polymorphisms that have been implicated in other diseases.
16. **Effect of Acetic Acid on MC3T3-E1 Osteoblastic Cell Viability**  
**Steven Bunker, Vincent Khang, Brian G. Chrzan | Dental Medicine**

Osteoblasts and osteoclasts are the two primary cell types coordinating the growth and maintenance of bone. Under normal conditions, osteoblasts deposit bone matrix, collagen, and hydroxyapatite and conduct mineralization while osteoclasts resorb bone. These two bone cell types are highly sensitive to variations in extracellular matrix acidity. In response to an acidic environment, osteoclast function is upregulated while osteoblast function is inhibited due to increased solubility of hydroxyapatite and inhibition of alkaline phosphatase, which are both required for bone mineralization.  
**Objectives:** The negative impact of acidosis on osteoblast function has been described, however, osteoblast viability in an acidic environment has yet to be explored. Characterizing osteoblast viability in an acidic environment is critical to determining if acidity solely inhibits specific osteoblast gene expression or if osteoblasts are physically damaged causing permanent cell dysfunction.  
**Methods:** Utilizing the MC3T3-E1 cell line, preosteoblasts were exposed to varying concentrations of acetic acid (1-10 $\mu$M) over two days. Cell viability was determined using trypan blue exclusion assays. Normalized values of three separate experiments were averaged and standard error calculated.  
**Results:** MC3T3-E1 preosteoblasts remained viable and demonstrated an increase in cell number from 24 to 48 hours for all acetic acid concentrations tested.  
**Conclusions:** The observation of increasing cell number over 48 hours, indicates that cells continue to replicate in the presence of up to 10 $\mu$M acetic acid. Additional studies are required to determine if alkaline phosphatase expression is inhibited under similar conditions. Understanding the effects of an acidic environment on osteoblasts may provide insight in determining how to treat chronic bone loss in patients suffering from osteoporosis, Paget’s disease or osteonecrosis.

Presentations:  
- UNLV Dental Student Research Day (March 2017)  
- International Association for Dental Research (March 2017)

17. **A Clinical Case Study of Dentinogenesis Imperfecta of Siblings**  
**Samuel Oh, Jeong Ho Seo | Dental Medicine**

**Purpose:** The purpose of clinical case study is to follow a case of dentinogenesis imperfecta of two pediatric male siblings for proper diagnosis, treatment planning and dental treatment.  

**Conclusion:** Dentinogenesis imperfecta is a rare genetic disorder of tooth development which causes discoloration of both primary and permanent teeth. Although the prevalence of this disorder is fairly uncommon, population who is affected by this disorder suffers social, physical and emotional distress due to premature loss of teeth. This case study presentation will add great value to dental professional community and general population through educating what dentinogenesis imperfecta is and how this disorder could be treated to enhance quality of life.

American Academy of Pediatric Dentistry Annual Session (May 2016)
18. Physiologically Diverse, Deeply Branching Bacterial phylum Chloroflexi
Scott C. Thomas, Jeremy A. Dodsworth, Enmin Zhou, Senthil K. Murugapiran, Tanja Woyke, Nicole Shaprio, Ben Bowen, Leslie P. Silva, Trent R. Northen, Brian P. Hedlund | Life Sciences

The physiologically diverse, deeply branching bacterial phylum Chloroflexi harbors clades that are important players in biogeochemical cycling on a global scale. Here we report on the diversity of two novel classes (Thermoflexia and yet-to-be named) and one order (Kallotenuales) of Chloroflexi found within Great Boiling Spring (GBS) in Nevada, USA. Genomic predictions and physiological experiments suggest diverse heterotrophic lifestyles. Additional insight into the physiology of Thermoflexus hugenholtzii, the only representative of the novel class Thermoflexia, are gained through metabolic probing and exometabolomics. Genomic predictions indicate complete central carbon pathways yet metabolic probing suggests disconnects between pathways and an inactive pathway. Exometabolomics provided insight into the consumption of specific organic compounds, and the ability to evaluate genomic and metabolic predictions. In combination, the phylogenomic and metabolic diversity of Chloroflexi have been expanded and significant strides have been made toward the discovery of a defined medium to aid in future studies of T. hugenholtzii.

Presentation: Goldschmidt (June 2016)

19. Dental Pulp Stem Cell (DPSC) Biomarker Expression of Oct4 and Sox-2 May Be Associated with Changes to Cellular Viability Following Cryopreservation
Brock Nelson, Allison Tomlin, Karl Kingsley | Dental Medicine

Background: Many studies have demonstrated clinical applications for the use of dental pulp stem cells (DPSC) for the treatment of various conditions, which have driven medical and scientific interest in the collection, isolation and banking of DPSC tissues for research into these potential therapies. Few studies to date have evaluated the viability of DPSC following long-term cryopreservation.

Objective: Based upon the paucity of information regarding long-term viability and biological markers for DPSC, the current aims of this study were to characterize and evaluate the effects of long-term cryopreservation, as well as to identify biomarkers that may be useful for future potential screening and applications.

Methods: Using previously collected DPSC isolates, growth and viability over a period of four years were examined. Results: This revealed an overall decline in viability at each time point that did not appear to be linear. In addition, the analysis of specific intracellular biomarkers, including Nestin, NANOG, Sox-2 and Oct4 revealed that Oct4 and Sox-2 may be the most important variable factors associated with both DPSC growth rate and viability during cryopreservation.

Conclusions: This information may be useful for future applications and therapies that could screen and sort DPSC using predetermined biomarkers to improve both efficiency and feasibility.
Science and Health Science
Poster Session C – Ballroom

Presentations

9:00 – 9:15am  (#20) Jeffrey Montes, Department of Kinesiology and Nutrition Sciences

9:15 – 9:30am  (#21) Justin Orton and Richard Foote, School of Dental Medicine

9:30 – 9:45am  (#22) Sheila Mosallaei, School of Life Sciences

9:45 – 10:00am (#23) Arin Hartounian and Guillermo Retis, School of Dental Medicine

10:30 – 10:45am (#24) Nicole Reyes, School of Dental Medicine

10:45 – 11:00am (#25) Kristyne Wiegand, Department of Kinesiology and Nutrition Sciences

11:00 – 11:15am (#26) Chanel Nguyen, School of Dental Medicine

11:15 – 11:30am (#27) Crystal Viss, School of Dental Medicine
20. Energy Expenditure and Step Count Analysis of the FitBit Flex Activity Tracker
Jeffrey Montes | Kinesiology and Nutrition Sciences

The purpose of this study was to investigate energy expenditure (EE) and step count (SC) measurements for the Fitbit Flex wrist-worn activity tracker (FFAT) during a two-day walking protocol. Forty-nine volunteers participated on the first day of testing and forty-six returned for the second. Thirty-one were used for reliability. Participants walked for 3 minutes at 1.5, 2.5, and 3.5 mph at 0% grade on two different days with at least three days’ separation. Each walk required the participants to wear a FFAT and to be monitored by an Applied Electrochemistry MOXUS Metabolic System (MX). EE and SC values for the 3-minute interval for each speed were compared to calories calculated from the MX and a manual count of steps (MC) respectively. Data was analyzed using dependent t-tests (p < 0.05) and Cronbach’s α (≥ 0.70). The FFAT significantly overestimated EE for all three speeds and was reliable only at 2.5 mph (1.5mph; p<0.01, SE: FFAT 19.43±0.73; MX 11.9±0.32, α=0.56. 2.5mph; p<0.01, SE: FFAT 25.0±0.75; MX 14.43±0.38, α=0.72. 3.5mph; p<0.01, SE: FFAT 27.2±0.77; MX 19.43±.049, α=0.67). It significantly underestimated SC and was not reliable at any speed (1.5mph; p<0.01, SE: FFAT 231±6.02; MC 269±2.58, α=0.55. 2.5mph; p=0.03, SE: FFAT 323±4.39; MC 332±2.18, α=0.50. 3.5mph; p<0.01, SE: FFAT 366±3.22; MC 380±2.21, α=0.66). The combination of the two may cause a user to fail to obtain the recommended daily amount of physical activity while simultaneously misleading them on the actual number of calories used for that day’s activities.

21. Caffeic Acid Phenethyl Ester (CAPE) Induces Oral Cancer Cell Apoptosis
Justin Orton, Richard Foote, Whitney Saarem, Karl Kingsley, Elena Farfel | Dental Medicine

Objectives: Propolis, or caffeic acid phenethyl ester (CAPE), is a natural antimicrobial resin from honeybee hives. This compound has been shown to have anti-proliferative activity against several kinds of human cancers, although limited research has evaluated its potential against oral cancers. An initial pilot study found that CAPE strongly inhibited oral cancer proliferation and reduced viability in vitro. The objective of this study was to expand screening to include more oral cancer samples, as well as to determine potential mechanisms for these observations.

Methods: The effects of CAPE were determined using four existing, well-characterized oral cancer cell lines. Growth and viability assays were performed to determine the effects of CAPE administration over the normal physiologic range for supplementation. RNA was then extracted to determine potential mechanisms associated with phenotypic changes.

Results: Maximal growth inhibition was observed between 20-100 μM CAPE administration. This inhibition ranged from -18.1% to -34.0% compared to control samples. Viability was reduced in a similar, dose-dependent manner. Expression of activators and mediators of apoptosis including caspase-2, caspase-3, and bax inducers were observed.

Conclusions: Although a previous study from this group found significant, inhibitory effects on oral cancer growth and viability following CAPE administration, this study may be the first to determine a direct mechanism explaining these results. Many existing oral cancer therapies are noxious even to non-cancerous cells and can only be tolerated in small doses. For this reason, the discovery and development of safe, natural, and non-toxic therapies becomes important and urgent.

Presentation: 2017 UNLV School of Dental Medicine Student Research Day (March 2017)
Cell communication plays a vital role in many cell processes during development. Cells communicate through signaling pathways that travel from the surface of one cell, the signaling cell, into the nucleus of another cell, the receiving cell, where the expression of genes in the DNA are modulated, causing changes in the behavior of the receiving cell. These signaling pathways are made up of a network of proteins that work together to carry the signals. One specific protein in Drosophila, Mothers against decapentaplegic (Mad), is the component of a signaling pathway, Bone Morphogenic Protein (BMP) Signaling, that is the main carrier of the signal from the cell surface and into the nucleus. Mad has been found to be involved in many contexts and essential for many biological processes throughout development. The gene that encodes this protein, Mad, has been manipulated in different ways to grasp a better understanding of its role in different developmental processes and contexts. Currently, there are several mutated versions of this gene, Mad, that have been widely used to study development in the absence of functional Mad, and therefore absence of BMP signaling all together. However, recent data from the lab of Ed Eivers (California State University, Los Angeles) suggest that these mutant versions of Mad are binding to components of another signaling pathway, Wnt. This unexpected observation indicates that available Mad mutants still have biological function, and that no available Mad manipulation will completely eliminate functional gene product. We are using a new gene engineering system, CRISPR-Cas9, to generate a more reliable removal of functional Mad all together. We expect this new manipulation will provide a reliable tool to assess the role and functions of Mad in BMP signaling.

Funded by NSF 1355091.
24. Screening of Pediatric Orthodontic Patients for Scardovia wiggsiae
Nicole Reyes, Alexander Pollock, Adam Whiteley, Karl Kingsley, Katherine Howard | Dental Medicine

Objectives: Orthodontic treatment has been associated with changes to oral microbial flora, particularly among pediatric populations. Many studies have focused on the alterations in the prevalence of bacteria that cause cavities, such as Streptococcus mutans. Recent evidence has revealed a new Gram-positive cariogenic pathogen, *Scardovia wiggsiae* - although few studies exist that explore prevalence among Orthodontic patients. The primary objective of this study is to determine the prevalence of *S. wiggsiae* among pediatric Orthodontic patients.

Methods: Screening of saliva samples revealed n=156 pediatric samples taken from the Orthodontic clinic not previously screened for *S. wiggsiae*. DNA isolation was performed on n=107 samples and successfully isolated from n=71 samples, yielding a recovery rate of 66.4%. Results: Following DNA isolation, samples were screened using qPCR with primers for *S. wiggsiae*. This analysis revealed the presence of Scardovia in n=32/71 or 45.1% of pediatric Orthodontic patients.

Conclusions: Although few previous studies exist to evaluate the prevalence of *Scardovia*, a previous study demonstrated prevalence among pediatric patients of 26% and adult patients of 19%. Another also revealed the prevalence of *Scardovia* in adult Orthodontic patients to be 14%. The data from this current study suggest significantly higher prevalence among pediatric Orthodontic patients, providing new information regarding the potential changes in pathogen levels among this population. Although this study is limited by its retrospective nature, it may be among the first to report significant differences in *S. wiggsiae* prevalence among pediatric Orthodontic patients that may improve our understanding of cariogenic pathogens and risk among this population.

Presentation: International Association for Dental Research General Session & Exhibition (March 2017)

25. The Effect of Small Perturbations in Running Velocity on Measures of Coordination Variability
Kristyne Wiegand, Julia Freedman Silvernail | Kinesiology and Nutrition Sciences

Background: Running research aims to replicate movement that occurs outside the laboratory and may represent daily life. During laboratory data collections, running velocity is often altered or constrained. In daily life, it is common for runners to change their running velocity based on training. Though small changes in velocity are common both inside and outside the laboratory, little is known about how small changes may affect underlying movement patterns.

Purpose: This study aimed to determine whether small deviations from preferred velocity led to changes in coordination variability (CV). METHODS: Nine healthy runners (age 22 ± 2 years) were recruited from Las Vegas. Biomechanical analyses were performed while participants ran at 85%, 90%, 95%, 100%, 105%, 110%, and 115% of their preferred velocity. CV values were averaged across trials and compared between conditions using repeated measures ANOVA (α<0.05).

Results: No statistically significant differences in CV were found between velocity conditions.

Conclusion: Small perturbations in running velocity do not influence CV of lower extremity couplings during stance phase. It is possible that small deviations from preferred do not affect CV, although previous research shows that larger deviations from preferred velocity may alter CV.

Presentation: Southwest Regional American College of Sports Medicine (October 2016)
26. Screening for *Selenomonas Noxia* among Clinical Pediatric Patient Saliva Samples
Chanel Nguyen, Quynh Bui, Jaydene McDaniel, Steven McDaniel, Katherine M. Howard, Karl Kingsley | Dental Medicine

**Objectives:** Recent work from this group has resulted in the development and validation of the first qPCR assay designed specifically to detect *Selenomonas noxia* (*S. noxia*) from clinical patient samples. *S. noxia* has been associated with periodontal disease and gastric ulcers. The objective of this study was to evaluate the prevalence of *S. noxia* among clinical pediatric saliva samples from an existing dental school-based repository.

**Experimental Methods:** An existing saliva repository was screened for pediatric patients at random, from which fifty samples (n=50) were identified. Of the fifty samples identified, DNA was successfully isolated with sufficient quantity and quality in twenty-five samples for qPCR analysis. Majority of these patients were pediatric orthodontic patients (n = 23/25). An internal positive control (IPC) was used in samples to determine true negatives from qPCR inhibition.

**Results:** The qPCR screening revealed that none of the pediatric patient saliva samples harbor sufficient *S. noxia* for detection. The vast majority of samples were derived from minority (Hispanic) children (68%). No significant differences in sex or age were found.

**Conclusions:** Although the data from this study was limited due to the restricted size of the existing saliva repository, these data suggest that the recently developed qPCR assay can be used to successfully screen for the presence of *S. noxia* in clinical patient samples. These data also suggest that other oral microorganisms may outcompete *S. noxia* in pediatric oral cavities and further research must be done to support this hypothesis.

Presentation: 95th General Session and Exhibition of the International Association for Dental Research (March 2017)

27. Alpha-MEM (Minimal Essential Media) Affects Dental Pulp-Derived Stem Cells (DPSC)
Crystal Viss, Joanna Shen, Yikwon Jang, Karl Kingsley | Dental Medicine

**Objectives:** Many new treatments and therapies may be possible with the discovery of new mesenchymal stem cell (MSC) sources, including Dental Pulp-Derived Stem Cells (DPSC). New evidence has suggested that alpha-MEM (minimal essential media) may be sufficient to induce some changes to MSC phenotypes – although little or no information is available regarding these effects in DPSC. Based upon this paucity of evidence, the main objective of this study was to evaluate the effects of alpha-MEM on DPSC isolates tested and to assess any phenotypic or molecular changes associated with this administration.

**Experimental methods:** Four DPSC isolates were selected for inclusion in this study. All were determined to be non-differentiated, rapidly growing isolates. Cells were thawed and then cultured in alpha-MEM media and their growth, proliferation, and phenotype were assessed in laboratory assays. RNA was isolated and screened using RT-PCR to determine any changes to differentiation.

**Results:** DPSC cultured with alpha-MEM exhibited differential phenotypes, suggested these effects may not be similar and comparable among all DPSC isolates. For example, dpsc-11750 and dpsc-5653 exhibited reduced growth (-11.6%, -13.6%, respectively), while dpsc-3921 exhibited virtually no alterations (-0.3%) and dpsc-11418 increased growth (+24.1%). Differential results were also observed in cellular morphology, which suggest these effects are non-equivalent among DPSC isolates. Similarly, mRNA analysis revealed differential changes to MSC and DPSC biomarker expression, including changes to Nestin and NANOG.

**Conclusion:** Although some evidence may suggest that alpha-MEM can induce MSC phenotypes in comparable and similar ways, preliminary results from this study may suggest that DPSC exhibit differential responses that may be more distinctive and idiosyncratic. These results suggest more research is needed to fully elucidate the potential changes induced by alpha-MEM on DPSC isolates, which may lead to improvements and advancements in the field of future DPSC therapy and treatments.
8:45 – 9:00am  (#28) Aaron Hunt, Department of Environmental and Occupational Health

9:00 – 9:15am  (#29) Kory Grahl, School of Dental Medicine

9:15 – 9:30am  (#30) Stephanie Molina, Department of Health Physics and Diagnostic Sciences

9:30 – 9:45am  (#31) Vincent Khang, School of Dental Medicine

9:45 – 10:00am (#32) Leland Barker, Department of Kinesiology and Nutrition Sciences

10:30 – 10:45am (#33) Robert Chauncey and Kai Hatch, School of Dental Medicine

10:45 – 11:00am (#34) Maryanne Seneviratne, School of Dental Medicine

11:00 – 11:15am (#35) Elizabeth Tanner, Department of Kinesiology and Nutrition Sciences

11:15 – 11:30am (#36) Maria Capinding and Brandon Saxe, School of Dental Medicine

11:30 – 11:45am (#37) Satyaprasad Nayak, School of Dental Medicine
New mothers are recommended to exclusively breastfeed their infants for the first six months to provide optimal health for infant and mother. Currently, only 25% of mothers in Nevada reach this milestone. Research suggests that improving father’s breastfeeding knowledge and support skills may extend exclusive breastfeeding.

Goals/Objectives:
- Design and administer the “Deluxe Dad” support and education group for low-income fathers at Women, Infant, and Children (WIC) clinics in Las Vegas Nevada
- Improve father’s knowledge, attitudes and support skills related to breastfeeding
- Increase exclusive breastfeeding rates at 6 months by 20% among infants enrolled in the “Deluxe Dad” Program compared to a control group.

Methods: Two-hundred pregnant couples will be recruited from WIC centers and randomly assigned to either the intervention group (IG) or control group. Participants assigned to the IG will attend the two sessions of the “Deluxe Dad” Program that will provide breastfeeding education, support skills, parenting tips and group discussions. Participants will receive weekly informational/support text messages. Participants will complete surveys at 1, 3, and 6 months to determine breastfeeding duration and exclusivity.

Expected Results: The “Deluxe Dad” Program is expected to result in a 20% increase in exclusive breastfeeding at six months compared to the control group.

Conclusion: This study will further the field of public health by determining if programs targeting fathers improve breastfeeding rates among low-income families.

Purpose of the Study:
Over the last five years at the University of Nevada, Las Vegas School of Dental Medicine, 3,276 implants have been placed. Of those, 55 have been small diameter implants (SDI), accounting for less than 2% of all dental implants. Nine SDI’s were placed for fixed application. This case report demonstrates the use of SDI’s, for a fixed application, utilizing a surgical guide for both the osteotomies and implant placement.

Methods:
Two 2.0 x 15mm SDI’s (Shatkin F.I.R.S.T.) were placed in the location of teeth #23 and #24. A surgical guide (Shatkin F.I.R.S.T Laboratory) was used for initial osteotomies to ensure proper angulation and for placement of the SDI’s. A laboratory fabricated splinted acrylic temporary (Shatkin F.I.R.S.T.) was placed during the healing phase.

Results:
Both SDI’s displayed successful integration, based on the Health Scale for Dental Implants. The SDI’s displayed no mobility, no pain or tenderness upon function, <2mm of radiographic bone from initial surgery, and no exudates. The final splinted PFM restoration was fabricated using conventional crown and bridge techniques and was cemented using FujiCEM.

Conclusion:
SDI’s are indicated in cases where bucco-lingual bone width is limited and bone and soft tissue grafting are not possible. A surgical guide can be used to ensure proper placement and angulation of SDI’s. Placement of a single traditional implant with a cantilever prosthesis has an increased chance of prosthesis failure in five years. SDI’s, in this application, have a success rate comparable to traditional implants. This case demonstrated a guided surgical technique for SDI’s without extensive bone or soft tissue grafting procedures.
30. **Use of Drug Carrying Macrophages as Delivery Vehicles for Treatment of Brain Tumors**  
Stephanie Molina, Henry Hirschberg, Steen Madsen | Health Physics and Diagnostic Sciences

The blood-brain barrier (BBB) presents a major challenge in the treatment of brain cancers as it often impedes efficient delivery of chemotherapeutic drugs. However, monocytes/macrophages (Ma) are known to be innately recruited by tumors and can bypass a compromised BBB. With an ability to nonspecifically engulf and digest a variety of materials, Ma can thus be used in targeted vectorization of therapeutics in order to increase drug concentrations within the tumor microenvironment. The use of Ma for the delivery of chemotherapeutics requires these cells to be relatively resistant to the toxic effects of the drugs. Furthermore, the Ma must release the drugs at target sites, i.e., the tumor microenvironment. The purpose of the current study was to determine the effects of a number of commonly used chemotherapeutics on two different cell lines: (1) rat Ma, and (2) rat brain tumor cells. Three drugs were investigated: bleomycin, 5-fluorouracil and doxorubicin. Cytotoxicity was measured using an MTS assay. The results show that, compared to rat brain tumor cells, rat Ma are highly resistant to the toxic effects of the three drugs investigated, especially bleomycin and 5-fluorouracil. These preliminary findings suggest that Ma can be used as chemotherapeutic drug delivery vehicles for the treatment of malignant brain tumors.

31. **Periostin Expression by Preosteoblasts in Response to BMP Treatment**  
Vincent Khang, Brian Chrzan | Dental Medicine

Periostin is a secreted, extracellular matrix (ECM) protein widely expressed within collagen-rich fibrous connective tissues of the body including the periodontal ligament (PDL), bone, skin, heart, and cornea. Periostin has been shown to serve many important regulatory functions including cell adhesion, cell motility, wound healing, and of particular importance to the dental field, differentiation of osteoblasts. Recently, there has been increasing interest in bone morphogenetic proteins (BMPs) due to their therapeutic osteogenic potential in orthopedics, oral surgery and other disciplines. Although periostin expression in osteoblastic cells has been studied in response to TGF-β1 and BMP-2, other BMP members have not been considered. Given that different BMP family members are differentially expressed in tissues of the body with different physiological functions, it is reasonable to assume that they may have different effects on periostin expression. The objective of this study is to demonstrate the in vitro expression of periostin by pre-osteoblast cells in response to BMP family members. Unlike other studies, this research is unique in attempting to determine not only the effects of BMP-2, but also BMP-4 and BMP-7 on periostin expression. In addition, no previous study has considered the antagonistic effects of BMP-3 in combination with BMP-2, BMP-4, or BMP-7. Pre-osteoblastic MC3T3-E1 cells will be treated with BMP family members in the range of 5 ng/ml - 50 ng/ml. Analysis of relative periostin mRNA expression in treated and untreated cells will be performed by Real-Time quantitative PCR (qPCR) using the GoTaq® RT-qPCR System with amplification using verified primers for periostin.
32. Relationship of Unloading, Eccentric, Amortization, and Concentric GRF Variables to Jump Height and Reactive Strength Index
Leland Barker, John Harry, John Mercer | Kinesiology and Nutrition Sciences

**Introduction:** To date, limited research exists on specific ground reaction force variables from the unloading, eccentric, amortization, and concentric phases (GRF) of the countermovement jump (CMJ). Furthermore, no studies have compared GRF variable correlations between jump height and the Reactive Strength Index (RSI), which normalized jump height to ground contact time. Therefore, the purpose of this study was to determine the relationship between GRF variables extracted from each phase to jump height and RSI.

**Methods:** 26 male D1 soccer players performed 3 CMJs on a dual-force platform sampling at 1000Hz. Unloading, eccentric, amortization, and concentric GRF variables were calculated from the combined vertical GRF-time profile (Fz).

**Results:** A large correlation was found between jump height and RSI. Regarding jump height, very large correlations were found with concentric kinetic energy and peak power, while large correlations were found with concentric displacement. Regarding RSI, very large correlations were found with countermovement time and work, eccentric RFD, 2nd peak Fz, average concentric Fz, and jump time. Large correlations to RSI include unload Fz, eccentric work, countermovement depth, amortization Fz and time, 1st Peak Fz, and peak power.

**Discussion:** The correlational discrepancies in jump height compared to RSI suggest there are many strategies for maximizing jump height alone, while force production within specific phases of the jump may distinguish performance when time is constrained by task and environmental factors (e.g. match play).

33. Isolation and Identification of Multiple Oral Cancer Stem Cells (CSC)
Kai Hatch, Robert Tate Chauncey, Toni Jilka, Karl Kingsley | Dental Medicine

**Objectives:** Previous studies have demonstrated some tumors develop or maintain a small sub-population of cells with stem cell-like properties. These cancer stem cells or CSC may exhibit differential properties that allow their escape from traditional radiation or chemotherapy treatments and may therefore be responsible for cancer recurrence. Few studies have explored this potential among oral cancers, therefore the objective of this study was to examine multiple oral cancer cell lines to determine if any or all contained subpopulations of CSCs.

**Experimental Methods:** Multiple commercially available oral squamous carcinoma cell (OSCC) lines were obtained for this study, including SCC4, SCC9, SCC15, SCC25 and CAL27. Cells were cultured for CSC screening and isolation. RNA was isolated from any potential CSC isolates for biomarker screening and verification.

**Results:** All OSCC lines examined developed adhesion-independent tumor spheres (AiTS), a characteristic phenotype of oral CSC. Each AiTS was manually isolated for separate, independent culture and analysis. RNA extracted from the AiTS revealed differential expression of specific CSC markers, including CD44, CD133, ABCG, CXCR6 and NANOG. These biomarkers were not observed in RNA extracted from the remaining non-CSC cell cultures.

**Conclusion:** Although a previous study from this group successfully isolated AiTS from one cervical and one oral cancer cell line, this may be the first study to isolate CSC from multiple oral cancer cell lines and verify both cell-surface and intracellular CSC biomarkers. These results may suggest that many tumors and oral cancers could harbor AiTS and CSC and that screening for these sub-populations may provide guidance for treatment and therapy to improve oral cancer survival rates.

**Presentations:** IADR General Session (March 2017)
UNLV Dental Student Research Day (2017)
34. Melatonin-Induced Alterations of PAF Signaling Genes in OSCC
Maryanne Seneviratne, Olivia Tsang, Karl Kingsley, Katherine Howard | Dental Medicine

**Objectives:** Platelet-activating factor (PAF) and PAF acetylhydrolase (PAF-AH) play an integral role in the progression and resolution of inflammation but relatively little is known concerning their role in oral squamous cell carcinomas. The primary objective of this study was to investigate the expression levels of PAF receptor (PAF-R) and PAF-AH in response to melatonin administration in 3 oral squamous carcinoma cell lines (OSCC).

**Experimental Methods:** The OSCC cells SCC-9, SCC-25, and CAL 27 were cultured with and without melatonin (10 ug/ml) for 72 hours and expression levels of PAF-R and PAF-AH were determined by qRT-PCR subsequent to the total RNA isolation and conversion into cDNA.

**Results:** All three cell lines expressed both PAF-R and PAF-AH, but the amount of gene expression varied between cell lines. Melatonin treatment resulted in an increase of PAF-R gene expression in SCC25 by 40% and in Cal27 by 41% as compared to their respective controls. However, SCC9 had no significant change in PAF-R expression in response to melatonin. Furthermore, melatonin treatment also increased PAF-AH gene expression in SCC25 by 44% and SCC9 by 31% over control levels, but showed no significant difference in Cal27 cells.

**Conclusions:** We demonstrated that the 3 OSCC cell lines examined have the capacity to respond to PAF and the ability to control PAF levels via the expression of the secreted PAF-AH. Melatonin administration induces changes in PAF signaling gene expression which may contribute to the anti-apoptotic and anti-metastatic effects of melatonin in OSCC cells.

Presentations: AADR/IADR (March 2017)

35. Validation of Hexoskin Biometric Shirt to Cosmed k4b2 Metabolic Unit in Adults during Rail Running
Elizabeth Tanner, Jacob W. Manning, Julie Taylor, Jeffrey Montes, Damon McCune, Tessa Koschel, Debra K. Tacad, Ashley Tovar, John C. Young, Mark DeBeliso, James W. Navalta | Kinesiology and Nutrition Sciences

The development of new wearable biometric technologies have increased in recent years. The Hexoskin biometric shirt is a wearable technology designed to monitor biometric measures including heart rate (HR), ventilatory rate (VR), minute ventilation (VE), steps, and energy expenditure (kcal). It is unknown whether the Hexoskin produces valid results for these measures in real-world applications. The purpose of this study is to validate biometric measures using the Hexoskin against the Cosmed k4b2 portable metabolic unit during trail running. Participants (N=27) completed a self-paced one-mile trail run wearing the Hexoskin and the Cosmed unit. Biometric measures (HR, VR, VE, steps, and energy expenditure) were recorded each minute by the Hexoskin and breath-by-breath by the Cosmed. Data for HR, VR, and VE were analyzed in six groups, the first three minutes and the last three minutes. Data for steps and energy expenditure were analyzed for the entire one-mile trail run. All data were analyzed using intraclass correlation with significance at p < 0.05 level. Only one HR measure, the second to last minute, showed significant correlation (r=0.342; p=0.041). All VR measures were significantly correlated (p<0.001). The remaining variables (VE, steps, and energy expenditure) were not significantly correlated at all time points. Our results indicate the Hexoskin provides valid real time measures of VR and HR in the second to last minute of activity. For all other measures and time points the Hexoskin does not provide valid results, with improved Hexoskin HR detection validation results may improve.

Presentation: ACSM's Annual Meeting and World Congress (June 2016)
36. **Uptake And Metabolism of Folate Among Dental Pulp-Derived Stem Cells**  
Maria Capinding, Brandon Saxe, Kristi Agari, Karl Kingsley | Dental Medicine

**Objectives:** Folic acid (FA) participates in many cellular pathways required for growth and survival among mesenchymal stem cells. The main objectives of this study were to evaluate the potential mechanisms associated with intake of FA among DPSC, as well as to determine any changes to pathways involving cellular FA metabolism.

**Experimental Methods:** Using previously isolated and characterized DPSC isolates, FA was administered within the normal human physiologic range of 1-400 uM to assess the effects on cellular phenotypes (growth, viability). RNA was isolated from DPSC isolates under FA administration to evaluate the pathways involved with FA intake and metabolism.

**Results:** Preliminary results demonstrated that the potocytotic FA carrier caveolin may be strongly up-regulated by FA administration in a dose-dependent manner. Although the compensatory intake mechanism human reduced folate carrier (hRFC) is normally down-regulated by increased caveolin activity, no hRFC reduction was observed - which may explain (in part) the increased responsiveness of DPSC to FA administration. In addition, RT-PCR screening of DPSC mRNA revealed a significant increase in thymidylate synthetase (TS) and dihydrofolate reductase (DHFR), enzymes involved in FA metabolism and biosynthetic pathways.

**Conclusion:** This study may be among the first to demonstrate that DPSC can significantly increase FA uptake via caveolin up-regulation without corresponding down-regulation of hRFC. In addition, both metabolic and biosynthetic pathways associated with FA may be directly influenced by FA administration, suggesting an additional consideration for future studies that strive to develop or differentiate DPSC for therapeutic or clinical treatments in the future.

37. **Evaluate Genetic Factors Influencing External Apical Root Resorption in Patient with No Previous History of Orthodontic Treatment**  
Satyaprasad Nayak, Brian Chrzan | Dental Medicine

Root resorption is a frequent unwanted occurrence during orthodontic treatment. Root resorption is characterized by a partial loss of root cementum and dentin, leading to apical root shortening. The reduction in root length leads to an increased risk of mobility and loss of the affected tooth. Biological factors include the quantity of specific inflammatory mediators and growth factors, as well as an individual’s specific alleles for the genes encoding these mediators. The association of root resorption during orthodontic treatment and a polymorphism of the interleukin 1Î (IL-1) (+3954) gene was the first description of a potential genetic marker in the pathogenesis of root resorption (Al-Qawasmi et al., 2003). Our study is unique in examining a large population of pre-treatment orthodontic patients all who have undergone 3D CBCT analysis. The sample size consists of 100 orthodontic patients from the UNLV School of Dental Medicine Orthodontic clinic, 50 subjects exhibiting short root anomaly and 50 subjects with normal root length. Genomic DNA was obtained from buccal cheek swabs with the Puregene method (Gentra Systems). To analyze genetic polymorphisms, PCR amplification of a region encompassing the +3954 polymorphic site was amplified. The PCR product was digested with TaqI restriction enzyme. The resulting products of 85 bp + 97 bp fragments (allele 1-C) and a single 182 bp fragment (allele 2-T) are specific to each potential allele at +3954 for an individual. Statistical analysis will be performed using the chi square test to investigate the allelic frequency in the subjects of the two groups.
<table>
<thead>
<tr>
<th>Time</th>
<th>Presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>(#38) Chandler Hyer, School of Dental Medicine</td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>(#39) Jaydene McDaniel, School of Dental Medicine</td>
</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>(#40) Jeff Eggleston, Department of Kinesiology and Nutrition Sciences</td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>(#41) Carlos Atrian, School of Dental Medicine</td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>(#42) Li Feng Cao, School of Dental Medicine</td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>(#43) Skyler Sudweeks and Jayson McClaren, Department of Physical Therapy</td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>(#44) Madeline DiPaolo and Devon McClurg, School of Dental Medicine</td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>(#45) Jillian Socea, School of Life Sciences</td>
</tr>
<tr>
<td>11:30 – 11:45am</td>
<td>(#46) Joanna Shen, School of Dental Medicine</td>
</tr>
</tbody>
</table>
38. Parental and Provider Perceptions of the Human Papilloma Virus (HPV) Vaccine in a Dental Clinic Setting
Chandler Hyer, Christina Demopoulos, Connie Mobley | Dental Medicine

**Purpose:** The purpose of this research is to determine knowledge and attitudes of parents of pediatric dental patients and those of a small sample of pediatric dentists regarding the role of oral healthcare providers in discussing the Human Papilloma Virus (HPV) vaccine with the patients and their parents. The HPV can cause oropharyngeal cancer along with other types of cancer. There is a vaccine for HPV, but historically has a very low acceptance rate.

**Methods:** Subjects will be recruited through their attendance at a UNLV School of Dental Medicine dental clinic. During their visit to these clinics, parents of patients, 5 to 14 years of age, will be provided information on the study by a research team member. The research team member will consent the parents and address any questions that they may have with the study or the 14-question survey. In order to assess the knowledge and attitudes of pediatric dentists, a 12-question online survey will be used to recruit licensed, pediatric dentists practicing in Clark County, Nevada. Providers will receive an electronic request and consent form asking that they complete the survey.

**Results:** Results will be available by March 12, 2017.

**Conclusions:** The integration of HPV discussions in dental settings can help increase the number of children receiving the HPV vaccine. The HPV vaccine can help reduce the risk for oropharyngeal cancer in addition to other risk factors.

Presentation: AAPD May 2017

39. *Scardovia wiggsiae* and *Streptococcus mutans* Prevalence among Dental School Patients
Jaydene McDaniel, Steven McDaniel, Amy Tam, Karl Kingsley, Katherine Howard | Dental Medicine

**Objectives:** Many studies have evaluated the prevalence of cariogenic pathogens among dental school patients, most notably the Gram-positive organism *Streptococcus mutans* (SM). Recent evidence has suggested another cariogenic pathogen *Scardovia wiggsiae* (SW) may also be present in the oral flora of a smaller subset of dental patients. Few studies to date have examined the corresponding prevalence of both SM and SW within the same patient samples, therefore the main objective of this study was to evaluate the presence of these cariogenic organisms within a dental school-based setting.

**Experimental Methods:** Screening was facilitated using DNA extracted from a pre-existing patient saliva repository and processed using qPCR. SW-positive (n=27) and SW-negative (n=15) samples were subsequently screened for the presence of SM. The samples were nearly evenly divided between males and females (45%, 55%, respectively) and were mostly Hispanic minorities (n=22/42 or 52%).

**Results:** This analysis revealed that 45% of samples (n=19/42) also harbored SM. More detailed analysis revealed that the vast majority of SM-positive samples (n=15/19 or 79%) were derived from SM-positive samples, while only a small percentage of SM-positive samples (n=4/19 or 21%) were derived from SW-negative samples.

**Conclusions:** The limited numbers of studies available regarding SW prevalence have suggested that SW and SM may inhabit similar and overlapping niches within the oral microbiome. In fact, some work has suggested the potential for competition and interactive inhibition between these organisms within the oral cavity. The preliminary data from this pilot study suggest SM and SW may, in fact, be present in the same patients and may not therefore be exclusively competitive - at least in this cross sectional study. Further research will be needed to further elucidate and validate these findings.

Presentations: IADR/AADR/CADR General Session & Exhibition (March 2017)
40. **Influence of a Weighted Backpack and Weighted Vest on Gait Kinematics in Children with Autism Spectrum Disorder**  
Jeff Eggleston, John R. Harry, Janet S. Dufek | Kinesiology and Nutrition Sciences

Contemporary research indicates that children with Autism Spectrum Disorder (ASD) exhibit movement dysfunction compared to children with typical development. With the increased prevalence of ASD over the last decade, it is important to understand how routine activities influence their movements. Since a large majority of these children are school-aged and typically carry a backpack (BP), it is important to understand how this task affects walking mechanics. To mitigate negative behavioral effects of ASD, weighted vests (WVs) have been utilized for therapeutic modalities. The effects of walking while carrying a weighted BP or while wearing a WV have yet to be examined in children with ASD. The purpose of this study was to examine lower extremity mechanics in children with ASD during walking. Participants completed 15 trials in each of the following conditions: 1) body mass (no BP or WV); 2) carrying a backpack with 15% added body mass; and 3) wearing a WV with 15% added body mass. While walking, threedimensional movement pattern data were collected and normalized to 100% of the gait cycle. Primary results indicate that walking while carrying a weighted BP or WV does not influence walking mechanics. The findings of this study suggest that walking while carrying a weighted BP or wearing a WV does not increase movement dysfunction, however, it also does not mitigate them. One potential explanation for the observed results may be that added load may be excessively heavy for children with ASD, thus limiting their functional degrees of freedom of movement.

41. **Salivary Molecular Screening for B7-H1/PDL-1 Expression among Smokers**  
Carlos Atrian, Jorge Quiroz, Karl Kingsley | Dental Medicine

**Objectives:** The cell surface B7 Homolog 1 or B7-H1 (also known as programmed death-ligand PDL-1) binds to cytotoxic T-cell receptors to inhibit T-cell activation and proliferation when encountering normal body cells and tissues. Previous studies have demonstrated overexpression of PDL-1 among oral squamous cell carcinoma samples, esophageal, lung, and colon tumors that may explain the ability to escape immune system detection. The main objective of this pilot study was to determine if dysregulation of B7-H1 was present among smokers.

**Experimental methods:** Using an existing saliva sample repository, RNA was isolated from samples obtained from patients that self-identified as smokers (n=12) or non-smokers (n=11). RNA was extracted, resulting in 22 RNA samples with sufficient RNA quality and quantity for RT-PCR screening.

**Results:** Molecular screening revealed B7-H1 expression among all of the normal, non-smoking patient samples screened but was absent or missing from all of the samples derived from smoking patients. Although B7-H1 dysregulation was observed among samples from smoking patients, the lack of expression was unexpected.

**Conclusion:** Although previous studies have found overexpression of B7-H1 in well-established tumors and oral cancers, little information is available regarding the expression among patients without a definitive diagnosis and virtually no information is available regarding expression in oral tissues comparing smokers and non-smokers. This study may be the first to observe down-regulation of B7-H1 among oral saliva-based samples from smokers, which may suggest an intermediate expression phase during oral cancer formation, although larger, prospective studies will be needed to verify these effects and observations.
**42. Association Between Screen Time and Oral Health Status in Children Aged 6 to 12 Years Residing in Clark County, Nevada**

Li Feng Cao, Cody Hughes, Christina Demopoulos, Connie Mobley, Marcia Ditmyer | Dental Medicine

**Purpose:** The purpose of this research is to examine the interaction between interactive screen time, i.e., video games, cell phones, computers, tablets etc. and oral health status.

**Methods:** Parents of children age 6-12 years old residing in Southern Nevada who attend any of the UNLV School of Dental Medicine dental clinics will be asked if their child can participate in a survey regarding their child’s interactive screen time habits. The parents will be given a consent form for participation of their child and the child will be presented with an assent form. The survey consists of 22 questions centered on the child’s use of electronic devices at home. After completion of the survey, the participating child will receive an oral health screening by a research team member. Screening data will include evidence of untreated decay, treated decay and presence of sealants. Treatment urgency will include no obvious problem, early dental care and urgent dental care. Age, gender, and race/ethnicity will also be documented on the screening form. Data will be de-identified and analyzed to determine a relationship between amount of interactive screen time and oral health.

**Results:** Results will be ready by the conference date.

**Conclusion:** Children who use interactive screen time during the weekday may be at higher risk of untreated caries. More research needs to be done in this area as children are exposed to more digital media.

---

**43. Acute Effects of Walking on the Deformation of Femoral Articular Cartilage of the Knee**

Skyler Sudweeks and Jayson McLaren | Physical Therapy

**Background and Purpose:** Articular cartilage covers the ends of long bones and allows them to glide with little friction. Osteoarthritis (OA) is characterized by a progressive loss of the articular cartilage, increasing the amount of friction in the joint, resulting in pain, decreased mobility, and decreased function. Previous studies show that static loading of the knee results in more cartilage deformation in those with knee OA compared to those without. Walking produces forces in the knee that are 2-3 times body weight, thus walking may result in greater cartilage deformation. The purpose of our study is to determine the acute effects that walking has on the femoral cartilage in individuals with and without knee OA and determine whether lower extremity alignment is associated with greater cartilage deformation.

**Subjects:** 10 subjects with radiographically-confirmed knee OA (age=; weight=; height=) and 10 subjects without radiographically-confirmed knee OA were recruited (age=; weight=; height=). Each group consisted of 5 males and 5 females.

**Methods:** Each subject underwent an X-ray and MRI assessment. Participants received x-ray imaging on both knees. MRI data was obtained before and immediately after 30 minutes of walking. To obtain cartilage deformation in response to walking, the medial and lateral femoral cartilage of the weight-bearing areas were segmented on subjects’ MRI. Independent t-tests were used to compare percent changes in medial and lateral cartilage thickness/volume in response to walking. Pearson correlation coefficients were used to assess the association between changes in medial cartilage deformation (thickness/volume) and frontal plane LE angles of all subjects.

**Results:** Independent t-tests revealed no significant change in cartilage deformation between OA group and control group in either medial or lateral femur (medial p=0.843, lateral p=0.660). Pearson correlation coefficient analyses revealed a significant correlation between cartilage thickness deformation of the lateral femur and increased static knee valgus alignment (p=0.039). No other significant correlation was found between changes in cartilage thickness deformation or volume deformation and static knee alignment.

**Conclusion:** This is the first study assessing the acute effects of walking on femoral cartilage thickness between persons with and without knee OA. Our data revealed that walking did not significantly decrease cartilage thickness in participants with and without OA.
**44. Cytotoxic Effect of Local Anesthetics on Gingival Fibroblasts**
Madeleine DiPaolo, Devon McClurg, Phillip Devore, Brian Chrzn | Dental Medicine

**Objectives:** Dental procedures routinely require the use of pain management with the use of local anesthetics. Although local anesthetics are considered generally safe, clinicians should be aware of their cellular responses in tissues. Cytotoxicity of several local anesthetics has been demonstrated in selected cell lines; however, the effect of local anesthetics on oral tissues is not well characterized. The objective of this study was to evaluate the cytotoxicity of five commonly used local anesthetic preparations on human gingival fibroblasts.

**Methods:** Human gingival fibroblasts (HGF-1) were treated with commercially available preparations of lidocaine, articaine, and mepivacaine, both with and without epinephrine. Final anesthetic concentrations ranged from 125 μM to 2 mM. Cell viability was measured over a 24 hour period using trypan blue exclusion assays. Average change in cell viability and standard error was calculated from three independent experiments.

**Results:** No significant difference in cell viability was detected for the anesthetic preparations tested.

**Conclusions:** Cytotoxicity was not observed at the tested concentrations within 24 hours. A higher concentration of anesthetic may be more representative of the local area surrounding an injection site and will be evaluated for both cytotoxicity and expression of early inflammatory mediators.

**Presentations:** UNLV School of Dental Medicine Student Research Day (March 2017)
IADR/AADR/CADR General Session & Exhibition (March 2017)

---

**45. Subcellular Localization of VirB, a Transcription Factor Essential for Virulence in Shigella flexneri**
Jillian N. Socea, Grant R. Bowman, and Helen J. Wing | Life Sciences

VirB is an essential transcriptional regulator of genes located on the virulence plasmid of the bacterial pathogen *Shigella flexneri*, which causes dysentery in humans. VirB is unique in that it is not related to any known transcriptional regulators, however, it is evolutionarily related to a plasmid-partitioning protein known as ParB. Although VirB and ParB do not share any functional overlap, utilization of ParB as a model may facilitate a more in-depth understanding of VirB. During plasmid partitioning, the ParB protein is seen to form discrete foci at the bacterial cell poles. This subcellular localization is dependent on the DNA-binding ability of ParB and is essential for its function. I hypothesize that due to protein similarity, VirB will also have a specific subcellular localization that is dependent on DNA-binding. Thus far, I have observed that when VirB is fused with GFP, discrete foci form near the quarter cell points in live *Shigella* cells. Interestingly, these foci form only when the large virulence plasmid, where putative VirB binding sites are found, is present suggesting that the formation of foci is dependent on DNA binding. Future work includes altering key amino acids in the DNA-binding domain of VirB in the context of the fusion protein, followed by phase-contrast and fluorescence microscopy imaging in live *Shigella* cells.

My work aims to discern the protein domains that have been conserved and those that have diverged between a partitioning protein superfamily and a key transcriptional regulator of virulence genes.

**Presentations:** ASM Southern NV/AZ Regional Conference (April 2016)
**Objectives:** Dental Pulp-Derived Stem Cells (DPSC) are multipotent mesenchymal stem cells, which maintain significant capacity for self-renewal. Recent studies have focused on the potential to differentiate DPSC into functional cell types, including neuronal precursors – which may help in the development of treatments for neurological diseases including Parkinson’s and Alzheimer’s disease. Recent work from this group demonstrated all-trans retinoic acid (ATRA) administration was sufficient to alter DPSC growth and induce changes to cellular morphology that suggested potential neuronal differentiation. The main objective of this study was to expand the number of DPSC isolates tested and to determine the molecular changes associated with these observations.

**Experimental methods:** Using previously isolated and characterized DPSC isolates, ATRA was administrated within a previously established physiologically relevant range of 1-20 μL/mL on four DPSC isolates (dpsc-11750, -11418, -5653, -3921). RNA was isolated for mRNA screening using RT-PCR.

**Results:** ATRA induced significant and similar reductions in cellular growth in all four DPSC isolates (range -30.4% to -45.8%), suggesting changes to doubling time indicative of partial cellular differentiation. Analysis of mRNA using RT-PCR suggested strong reductions in biomarkers associated with DPSC, including CD24, Oct4 and p27 – another indication these DPSC may be experiencing partial differentiation and loss of “stem-ness”.

**Conclusion:** This study may be among the first to demonstrate that ATRA may have the potential to induce phenotypic changes to DPSC in vitro that suggest phenotypic, behavioral and biochemical alterations associated with cellular differentiation. Evaluation of biomarkers associated with neuronal differentiation are now currently underway. These studies may significantly enhance our understanding of potential methods and pathways associated with DPSC differentiation and the potential for DPSC-specific future treatments and therapies.
### Presentations

<table>
<thead>
<tr>
<th>Time</th>
<th>Speaker(s)</th>
<th>Department</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>(#47) Julia Hussey and Nina Paul, Department of Psychology</td>
<td></td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>(#48) Cassandra Boyer, Department of Criminal Justice</td>
<td></td>
</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>(#49) Davor Zink, Department of Psychology</td>
<td></td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>(#50) Caryn Tegtmeyer, Department of Anthropology</td>
<td></td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>(#51) Leizle Lapping-Carr, Department of Psychology</td>
<td></td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>(#52) Jacqueline Ragin, Department of Sociology</td>
<td></td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>(#53) Cheryl Anderson, Department of Anthropology</td>
<td></td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>(#54) Mary Baggio, Department Psychology</td>
<td></td>
</tr>
</tbody>
</table>
47. Executive Functions Predict Social Cognition in Adolescents with Traumatic Brain Injury  
Nina B. Paul, Ashley S. Emami, Julia E. Hussey, Joan Mayfield, Daniel N. Allen | Psychology

**Objective**: Deficits in social cognition (SC) abilities are identified in traumatic brain injury (TBI) although it is unclear how SC deficits are associated with nonsocial cognitive (NCS) deficits that are commonly observed following TBI. Research indicates SC abilities are related to NCS abilities and may moderate the relationship between NSC deficits and functional impairment. Executive function deficits may be particularly important for adequate SC abilities. To investigate this matter, the current study examined the relationships between SC and executive functions in adolescents with TBI.

**Method**: Participants included 40 adolescents (19 females) with TBI who were 16.0 years old (SD=1.60). Thirty-one were Caucasian, 7 were African American, and 2 were Hispanic. Average Glasgow Coma Scale score was 6.0. Executive functions were assessed with the Delis-Kaplan Executive Function System (D-KEFS) and SC with the Adolescent Test of Problem Solving 2nd Edition (ATOPS). The ATOPS includes subtests that assess social problem solving, inference making, and theory of mind.

**Results**: Stepwise regression examined whether D-KEFS scores predicted performance on the ATOPS. Performance on D-KEFS Color-Word Interference significantly predicted ATOPS Problem Solving (p<.001), while D-KEFS Trail Making Test significantly predicted ATOPS Transferring Insights (p<.05).

**Conclusion**: Results indicate that specific executive functions are associated with specific SC abilities in adolescents with TBI. Although it is currently unclear how these SC deficits might predict impairments in functional abilities, models incorporating NSC and SC abilities are needed to understand the relationships between executive function and SC deficits following TBI and their associations with functional outcomes over time.

Presentation: National Academy of Neuropsychology (October 2016)

48. Resisting Surveillance in the AR Movement  
Cassandra Boyer | Criminal Justice

In the post-9/11 era, the USA PATRIOT Act provided law enforcement agencies broad powers in which to investigate citizens believed to be potential or perceived domestic terrorist threats. Several provisions of the PATRIOT Act were created specifically to investigate animal rights activists. Preceded by the Animal Enterprise Protection Act (AEPA) of 1992, the Animal Enterprise Terrorism Act (AETA) of 2006 passed a federal law under which animal rights activists could be charged as domestic terrorists. As of this writing, two activists are being prosecuted under AETA for releasing 2,000 minks from a farm in Illinois in 2013.

The researcher conducted face-to-face and phone interviews with 13 activists in the states of Nevada, Oregon, Colorado and Virginia to determine the extent and impact of surveillance within the animal rights movement. An unexpected finding of this research was that the majority of the sample in the study were aware of the concept of surveillance. Additionally, many activists expressed the view that surveillance was an inevitable part of being an activist. Many activists also reported that they took precautionary measures to avoid surveillance and actively partook in counter-surveillance measures. Despite their knowledge of and exposure to surveillance, it does not appear that state-sponsored surveillance has stifled the willingness of activists to participate in the animal rights movement.
Objective: The WISC-IV is the most commonly administered intelligence test for children and is often used for evaluation when Learning disability or ADHD is suspected. Studies comparing WISC-IV profiles of children diagnosed with ADHD with and without comorbid learning disorders indicate differences in WISC-IV profiles that are consistent with theoretical considerations. In 2005 a Spanish version of the WISC-IV was developed but little information is available regarding its validity when used with clinical populations.

Methods: The current study examined WISC-IV profiles in 160 children of Puerto Rican descent whose primary language was Spanish. These children were referred for neuropsychological evaluation for a variety of reasons and those included in the current study had a primary diagnosis of ADHD or no diagnosis. These children were divided into subgroups based on ADHD subtype and the presence or absence of a comorbid learning disorder.

Results: Group comparisons on the WISC-IV Index scores and subtest scores indicated that children with ADHD performed at levels comparable to controls while those with comorbid learning disorders performed significantly worse than controls or children with ADHD only.

Conclusions: Results of the study are discussed in the context of cross cultural assessment and current findings regarding IQ profiles in children with ADHD and Learning disabilities.

Presentation: National Academy of Neuropsychology 36th Annual Meeting (November 2016)
51. Inner Experience while Reading an Erotic Short Story
Leiszle Lapping-Carr, Christopher L. Heavey | Psychology

An investigation of the phenomenological aspects of sexual response is needed for a more comprehensive understanding of human sexuality. This study gathered samples of pristine inner experience while reading an erotic short story using Descriptive Experience Sampling (DES) to get a glimpse at phenomenological experience during a sexually oriented task. Seven participants used DES to obtain high fidelity descriptions of inner experience during every day experiences, reading classical fiction short stories, and reading an erotic short story. Participants were interviewed about their experiences after each sampling day. The interviews were used to create descriptions of each sampled moment and idiographic profiles of the experience of each individual. Some of the participants enthusiastically reported on their natural environment experience, but were unwilling to discuss their experience while reading erotica. While reading the erotic short story, participants predominantly had vivid inner seeings of sexual scenes, regardless of their dominant experience in their natural environment. Most participants reported generally finding the story to be sexually arousing (5 of 7), were engaged in the reading (85% of moments), and innerly saw sexual scenes (74.1% of moments). Despite high engagement with the reading and sexual inner seeings, there was little to no direct experience of sexual arousal (3.7% of moments). The findings suggest that experience during sexually oriented tasks is particularly private and raise the possibility that a pristine inner experience of sexual arousal is a fleeting but salient phenomenon. Future studies should investigate pristine experience during other sexual activities.


52. Privilege and Caregiving Interventions: The Role of Social Location on Coping with Caregiving
Jacqueline Ragin | Sociology

Population aging and the consequent challenges are unprecedented in global history. One of the profound issues emanating from this event is the sharp rise in demand for caregivers for diseases impacting the elderly, such as Dementia (MMMI 2010; NIA and WHO 2011). Addressing the subsequent financial cost and emotional burden on these caregivers is critical as the burden and stress of caregiving can be detrimental to the caregiver’s own personal health (Jarrot et al. 2005; Reinhard, Levine, and Samis 2012).

The purpose of the study was to examine how privilege, defined by social location impacts the effectiveness of caregiving intervention programs for dementia caregivers. The research aimed to understand whether the socioeconomic factors of race and education predict an even greater benefit for Caucasian, highly educated caregivers. The benefits were measured using the Center for Epidemiologic Studies Depression Scale (CES-D) and the Perceived Stress Scale (PSS). The primary research question was “how do race and education impact (or influence) benefits of dementia caregiver intervention programs?” The study was quantitative in nature and used a secondary dataset of 156 female caregivers. In this study, I took a sociological perspective to directly address the role of privilege on CWC.

Quantitative statistical analysis was performed using SPSS (IBM 2011). The change in scores from pre to post-tests in CESD and PSS were used to measure treatment effectiveness. Of the hypotheses proposed results only supported the hypothesis that Coping with Caregiving (CWC) had a greater effect on stress outcomes than Telephone Support Control (TSC).
Social Science Poster Session A – Ballroom
11:00 – 11:15am

53. Suicide Trends in Clark County Nevada: A Comparison of Recession and Post-Recession Years
Cheryl Anderson | Anthropology

The goal of this project was to gain insight into patterns of suicide within Clark County, Nevada. This study examines suicides during recession and post-recession years to see whether the recession had any impact on suicide trends. Demographic information including age, sex, ethnicity, marital status, and zip code (as a proxy for socioeconomic status) was collected for 2008 and 2015 suicide deaths using the Clark County Coroner/Medical Examiner Office records. These factors were then compared between the two years to identify any differences. The results showed little difference between the 2008 recession and 2015 post-recession years. The suicide rate was similar for both years at approximately 0.02% of the total population. Age, sex and ethnicity trends were also similar with white males being by far the most commonly affected group in both years followed by white females. In 2008 white males accounted for 244 of the 383 total suicides and white females accounted for 71. In 2015 white males accounted for 232 of the 416 total suicides and white females accounted for 91 of the suicides. Number of suicides also increased by age in both years with generally the highest rates of suicides in the 41-50 and 51-60 year age ranges.

Social Science Poster Session A – Ballroom
11:15 – 11:30am

54. Event-Related Potentials during Face Processing of Interpersonal Psychopathy Factors
Mary C. Baggio, Stephen D. Benning | Psychology

Psychopathy is a disorder characterized by antisocial behavior, emotional impairment, and unstable interpersonal functioning. There is substantial amount of evidence to support deficits in psychopaths processing of faces. No prior research has investigated the relationship between specific interpersonal psychopathy factors as measured by the Interpersonal Measure of Psychopathy (IM-P) and facial processing. The aim of the current study was to investigate aspects of psychopathy related particularly to interpersonal factors (Grandiosity, Boundary Violations, Dominance) assessed with the IM-P. A sample of 71 community participants from the emergency room completed the IM-P and viewed a variety of faces for 2-3 seconds each while EEG was recorded from electrodes placed according to the 10-20 system. Event-related potential amplitudes to a total of all faces were correlated with IM-P factors. Results showed that Grandiosity was negatively correlated with VPP amplitude to faces at F8, suggesting that those higher in grandiosity have reduced processing of facial stimuli. Boundary Violations was positively correlated with higher P3 and LPP amplitudes at center-right across the head. This suggests that higher boundary violations are associated with greater contextual processing of human faces. Overall, the results suggest different interpersonal factors of psychopathy correlate in opposite directions with facial processing. Further research investigating this relationship is needed.

Presentation: Society of Psychophysiological Research Annual Meeting (September 2016)
Social Science
Poster Session B – Ballroom

Presentations

9:00 – 9:15am (#55) Maria Alicia Nuñez, Department of Psychology

9:15 – 9:30am (#56) Alesha Pettit, Department of Anthropology

9:30 – 9:45am (#57) Ashley Emami, Department Psychology

9:45 – 10:00am (#58) Benjamin Van Alstyne, Department of Anthropology

10:30 – 10:45am (#59) Olivia Tuttle, Department of Criminal Justice

10:45 – 11:00am (#60) Yen-Ling Chen, Department of Psychology

11:00 – 11:15am (#61) William Willis, Department of Anthropology

11:15 – 11:30am (#62) Yulia Gavrilova and Marina Galante, Department of Psychology
55. Factor Structure of the Wechsler Intelligence Scale for Children® Fourth Edition Spanish in a Clinical Sample of Puerto Rican Children
Alicia Nuñez, Davor Zink, Kimberly Barchard, Liza San Miguel, Victoria Copeland, Daniel Allen | Psychology

The Wechsler Intelligence Scale for Children® Fourth Edition Spanish (WISC-IV Spanish) is a translation and adaptation of the WISC-IV and is often used to evaluate children when Attention-Deficit/Hyperactivity Disorder (ADHD) or learning disorder (LD) is suspected. Factor analysis of the WISC-IV Spanish normative sample identified four factors, suggesting that its factor structure is similar to that found for English-speaking populations. Yet, there is limited information on the factor structure of the WISC-IV Spanish when used with clinical populations. This study examined the factor structure of the WISC-IV Spanish in a clinical sample of Hispanic children of Puerto Rican descent. The sample included 145 Spanish-speaking children who had a diagnosis of ADHD or LD, and had been administered the WISC-IV Spanish as part of a clinical evaluation (mean age = 10.23 years; SD = 2.85). Confirmatory factor analyses were performed to evaluate if the WISC-IV Spanish was best explained by a one-, two-, three-, four-, or five-factor model based on the Cattell-Horn-Carroll theory. The four-factor model provided the best fit for the data (comparative fit index = .95; root mean square error of approximation = .053, 95% CI [.000, .089]). Findings support the four-factor structural validity of the WISC-IV Spanish in Puerto Rican children with ADHD or LD, consistent with the model reported in the standardization sample for English-speaking children on the WISC-IV. Future studies should continue to examine the factor structure of the WISC-IV Spanish in understudied clinical populations to address gaps in cross-cultural research.

Presentation: National Academy of Neuropsychology 36th Annual Meeting (October 2016)

56. Brain Size as an Evolutionary Constrain on Facial Form
Alesha Pettit, Brian Villmoare | Anthropology

The neurocranium has been identified by researchers to be a likely evolutionary module, a morphologically and developmentally independent structure. The neurocranium is independent from other morphologically adjacent modules, including the face and the basicranium. This independence implies that the cranium and the face impose no evolutionary constraints on each other. If selection were to affect one particular module, it would be unconstrained by the other modules in the cranium. However, some recent research has proposed that the brain has a significant effect on the craniofacial region, especially during development.

This study seeks to identify if the brain is independent from the other modules, or if it is constrained by them. Specifically, the face and the neurocranium were compared. This research will provide evidence regarding selection on early hominin craniofacial development and encephalization, and inform on evolutionary trends throughout the hominin lineage.

Cranial capacity data and landmarks were collected from 60 gorillas, 45 chimpanzees, and 84 humans of mixed sex to identify how craniofacial variation patterned with brain size. CT scans from the Smithsonian great ape collection were used and CT scans of humans from The University of Pennsylvania Museum of Archaeology and Anthropology were also used.

Results indicate that among apes, cranial capacity is independent of the rest of the cranium. The face and the brain were likely able to evolve independently from each other and respond to different selection forces. Constraints on brain evolution are likely directly related to aspects of the brain itself.

Presentation: American Association of Physical Anthropologists Annual Conference (April 2017)
57. The Comprehensive Trail Making Test (CTMT)  
Ashley Emami, Nina Paul, Lisa Beckman, Susette Favela, Joan Mayfield, Daniel Allen | Psychology

The Comprehensive Trail Making Test (CTMT) is sensitive to simple and complex sequencing deficits in children who have sustained TBI. However, it is unclear whether sequencing deficits may predict fluency related deficits in reading and math among this population. The current study examined this matter by assessing whether CTMT performance was predictive of Broad Reading and Broad Math achievement scores on the Woodcock-Johnson III Test of Achievement Abilities-Third Edition (WJ-III-ACH).

The study included 170 children and adolescents (37.6% female) who were on average 14.6 years old (SD = 13.7). Participants completed the CTMT and standard battery of the WJ-III-ACH. CTMT factor scores were created to assess simple sequencing (Trials 1, 2, and 3) and complex sequencing (Trials 4 and 5). In the first regression model, CTMT complex sequencing was a significant predictor of Broad Reading scores (p < .001), whereas CTMT simple sequencing was not (p>.05). The first model explained 60.1% of the variance in Broad Reading scores. Similar to the first model, CTMT significantly predicted Broad Math scores (p < .001), whereas CTMT simple sequencing did not (p>.05). The second model explained 65.4% of the variance in Broad Math scores. These data provide evidence for the use of the CTMT in identifying children at risk for experiencing lower levels of achievement in reading and math fluency. Performance on the complex sequencing factor, which places greater demands on working memory, inhibition, and executive functioning, was a better predictor of Broad Reading and Broad Math skills than the simple sequencing factor.

Presentation: National Academy of Neuropsychology Conference (October 2016)

58. Capturing the Past in Remote and Extreme Environments  
Benjamin Van Alstyne | Anthropology

As archaeologists go out into the field, they sometimes go out under circumstances where they are limited to how much gear they can take with them; how much time they can spend in the field; and by their allotted budget. In addition, they are sometimes restricted from excavating and/or collecting artifacts. Thereby, they can only observe and record what is on the surface at the archaeological sites as a survey study. These survey studies are useful and important, yet archaeologists will quickly analyze and record any observed unique artifacts and features; thus, sites are inaccurately represented and an in-depth analysis is foregone. Therefore, archaeologists need a means of quickly recording data for an in-depth analysis to mitigate the loss of this information.

One method that archaeologists have recently been adopting to overcome these challenges is photogrammetry. A low-cost method to create digital 3D models from a series of photographs. However, this method requires equipment that is unmanageable under space and weight limitations. Nevertheless, this project argues that photogrammetry is possible despite these restrictions, as evident by the observation-only study conducted last summer in the remote and extreme environment of the Shivwits Plateau. Arising from the challenges that were encountered, this presentation explores the utilization of low-cost, compact, and lightweight equipment that allows for properly photographing artifacts and sites to make analytical 3D models. Thereby, archaeologists can record and “collect” artifacts and features despite space and weight limitations stemming from working in remote and extreme environments.

Presentation: SAA Conference (April 2017)
59. **International Responses to Human Trafficking: A Comparative Secondary Data Analysis of National Characteristics**

Olivia Tuttle | Criminal Justice

Human trafficking is a rising international issue that has become a key concern for human rights organizations and governments throughout the world. As such, new policies are being developed and implemented to combat the problem. A guiding standard for these policies is the UN 2000 Protocol to Prevent, Suppress and Punish Trafficking in Persons, Especially Women and Children, which established a formal definition and modern concept of human trafficking. While the UN Protocol was a significant step in the fight against human trafficking, it is limited by its framework, which focuses heavily on criminalization and punishment of traffickers. Recent discourse and analyses argue that it is essential to consider root macro-structural and societal sources of exploitation in order to establish more effective policies. Grounded in conflict theory, the current study uses data from national and international agencies to assess socioeconomic characteristics of nations (i.e. prevalence of modern slavery, stability, gender inequality, social and economic development) that are associated with efforts to combat human trafficking. The results of this study are discussed in terms of their limitations and implications for future research and public policy regarding international responses to human trafficking.

Presentation: American Society of Criminology Annual Conference (November 2016)

60. **Diagnostic Efficiency of the Child Behavior Checklist (CBCL) Internalizing Score for Identifying Mood Disorders**

Yen-Ling Chen, Eric A. Youngstrom, Jennifer K. Youngstrom, Robert L. Findling | Psychology

**Background:** The Child Behavior Checklist is one of the most widely-used assessment tools in clinical practice. The internalizing score of the CBCL (i.e., anxious/depressed, withdrawn/depressed, and somatic complaints) has been demonstrated to be highly correlated with mood disorders. However, informant discrepancies are common, which often yield inconsistent assessment results. The current study aims to examine the diagnostic efficiency of the CBCL, Youth Self Report (YSR) and Teacher’s Report Form (TRF) internalizing scores for identifying mood disorders.

**Method:** 774 clinical outpatient youths (age 5-17) and their caregivers completed K-SADS interviews. Based on consensus diagnoses from K-SADS lifetime and current symptom ratings, 357 youths met DSM-IV criteria for mood disorders. Caregivers, youths and teachers completed the CBCL, the YSR and the TRF respectively. Receiver operating characteristic analyses evaluated diagnostic efficiency.

**Results:** Both internalizing scores significantly identified youth mood disorders (CBCL: $AUC=0.72$, $p<0.001$; YSR: $AUC=0.64$, $p<0.001$). Furthermore, the CBCL performed significantly better than YSR ($AUC=0.72$ vs. $AUC=0.63$ on the age cohort with both, $p=0.006$) and TRF ($AUC=0.68$ vs. $AUC=0.56$ in the subset with teacher report, $p=0.014$).

**Discussion:** The caregiver report on the CBCL internalizing score had better diagnostic accuracy for mood disorders than self and teacher reports. Both caregiver and youth reports are statistically valid, but caregiver report appears more accurate and also usable across a wider age range. Future directions include establishing optimal threshold scores for diagnostic interpretation, and examining follow-up methods for discerning bipolar from unipolar mood disorder, as well as identifying other subsets that might show different responses to treatment.

Presentation: 50th Annual Convention of the Association for Behavioral and Cognitive Therapies (October 2016)
61. **Spatial-Temporal Distribution of Prehistoric Puebloan Settlements and Ceramic Wares on the Shivwits Plateau**  
William Willis | Anthropology

During the summer of 2016, graduate students from the University of Nevada, Las Vegas conducted in-field ceramic analysis on Virgin Branch Puebloan sites found on the National Park Service portion of the Grand Parashant National Monument. Data collected from this project were analyzed in GIS in order to establish habitation site chronology in the region as well as address spatial artifact and settlement patterns through time as they relate to environmental variables. It is concluded that the land in the southern portion of the project area was favored more by the Virgin Branch during the early part of the region’s occupation. However, relating changes in settlement distribution patterns and land use through time to environmental variables is not straightforward. Finally, the findings of this study lend support to the hypothesis that Shivwits Ware ceramics were produced in the far southern portion of the Shivwits Plateau.

62. **Controlled Evaluation of a Method of Recruiting Participants into Treatment Outcome Research**  
Yulia Gavrilova, Marina Galante, Christopher Plant, Michelle Pitts, Katie Andrewjeski, Bradley Donohue | Psychology

Recruitment of participants into treatment outcome studies is an important and often challenging aspect of human research. Yet there have been very few controlled trials that have examined methods of recruiting participants into treatment outcome studies, particularly in populations that are difficult to engage in treatment, such as athletes. In this study, 79 collegiate athletes volunteered to participate in a study to determine their interest in participating in one of two goal-oriented programs representing two arms of a clinical trial aimed at reducing substance abuse and HIV risk behaviors, and improving mental health, relationships, and sport performance. Participants were randomly assigned to Standard Recruitment (SR) or Recruitment Engagement (RE). The RE condition included a number of strategies that were developed to motivate participants to engage in the respective treatment outcome study. The SR condition involved a review of the aforementioned treatment outcome study only. After the respective recruitment interventions were implemented, participants were queried to report any negative consequences that may have occurred from their use of illicit drugs or alcohol. Participants who reported negative consequences were invited to participate in baseline assessment for the aforementioned treatment outcome study. Results indicated 11 (25.0%) of the participants in the RE condition provided their consent to participate in the outcome study, nine (20.5%) of whom subsequently completed baseline assessment; only two (5.7%) of the SR participants provided their study consent and subsequently participated in baseline assessment for the clinical trial (p < .05). Participants in both conditions were administered psychometrically validated instruments to assess various aspects of their psychiatric functioning and sport performance after the respective interviews (RE, SR) were implemented. Participants in RE were more likely to report greater sport specific problems than SR participants, suggesting RE may influence greater disclosure of personal information in this domain than SR participants. Study implications and recommendations for future research and practice are discussed in light of the findings, including the need to develop engagement programs for evidence-based treatment.

Presentation: Association of Behavioral and Cognitive Therapies (October 2016)
Social Science Poster Session C – Ballroom

Presentations

9:00 – 9:15am  (#63) Kathleen Larson, Department of Psychology
9:15 – 9:30am  (#64) Shon Reed and Kelly Stout, Department of Criminal Justice
9:30 – 9:45am  (#65) Stacy Graves, Department of Psychology
9:45 – 10:00am (#66) Sarah Hechter, Marriage and Family Therapy Program
10:30 – 10:45am (#67) Amy McAuley, Department of Psychology
10:45 – 11:00am (#68) Stephany Molina, Department of Psychology
11:00 – 11:15am (#69) Carrie Underwood, Department of Psychology
63. **Working Memory Spatial Span Tests and Phonological Similarity Effects**  
Kathleen G. Larson, Nicole J. Bies-Hernandez, David E. Copeland | Psychology

Working memory is the system that allows us to remember information over a brief period of time by actively holding pieces of information in the mind. Working memory helps people perform a variety of tasks such as, solve math problems, understand conversation, and navigate to an unfamiliar building on campus. A classic working memory finding is that target items that are phonologically similar tend to produce worse recall performance than dissimilar words (Conrad & Hull, 1964). However, the phonological similarity decrement can be eliminated using articulatory suppression (e.g., Camos, Mora, & Barrouillet, 2013), and phonological similarity facilitation can occur when a meaningful context is used (e.g., Copeland & Radvansky, 2001). Furthermore, Copeland, Bies-Hernandez, & Larson (2014) recently demonstrated phonological enhancement with the operation span and when the reading span consisted of non-words. The present study investigated phonological similarity using span tasks with a different processing component than previously used (i.e., not mathematics nor words). This was conducted using modified symmetry and picture span tasks based on Foster et al. (2015). As expected, phonological similarity decrement was observed with both of these span tasks (i.e., rhyming words were harder for participants to remember). The findings of this study will be discussed in terms of theoretical explanations for phonological similarity effects.

Presentation: The Psychonomic Society 57th Annual Meeting (November 2016)

64. **Hidden Victims: Expanding Research around Victims of Sex Trafficking**  
Shon Reed, Kelly Stout, Alexis Kennedy | Criminal Justice

Human sex trafficking is a major issue both domestically and internationally. Previous research has focused primarily on female victims caught in the sex trafficking industry. However, far too little research has been conducted on other victims, including boys and men, as well as youth and adults within the LGBTQ community. Due to the lack of studies on victims with other identifying distinctions, many are overlooked by our traditional sex trafficking entrapment theories and interventions. To highlight this issue, my paper identifies the common methods pimps utilize to entrap and recruit their sex workers. I then provide an overview of the current lack of research related to the recruitment techniques pimps use on male and LGBTQ-identified victims. Next, I highlight how this lack of knowledge affects our policies to protect youth from being entrapped in the sex trafficking industry. Finally, I will discuss future directions in sex trafficking research that can address this gap in literature.

Presentation: Western Society of Criminology (February 2017)
65. The Relationship between ADHD Symptomatology and BASC-2 Parent Ratings
Stacy Graves, Elyse M. Parke, Daniel N. Allen | Psychology

Objective: Neuropsychological assessments conducted with children with Attention Deficit Hyperactivity Disorder (ADHD) often include both measures of broad behavioral ratings and levels of ADHD symptomatology. However, it is unclear the extent to which these two measures share substantial common variance or measure unique domains. In efforts to increase efficiency, clinicians may eliminate a measure from their assessment battery. Therefore, the current study examined this matter.

Method: Participants included 253 children with ADHD-Inattentive (n=163) and ADHD-Combined (n=90). Children were 10.4 years old and 70.4% male with a Full Scale IQ of 98.7. Diagnoses were established in a private practice through comprehensive evaluations, including administration of the Behavior Assessment System for Children, Second Edition (BASC-2) and DSM–IV ADHD Symptom Rating Scale (DSM–ADHD–SRS).

Results: There were significant moderate correlations identified between the respective mothers’ ratings of Attention Problems/Inattention and Hyperactivity on the BASC-2 and DSM-ADHD-SRS parent ratings, \( p < .01 \). In terms of convergent validity, the DSM-ADHD-SRS Inattention and Hyperactivity subscales correlated significantly and positively with BASC-2 Hyperactivity and Attention Problems subscales. In terms of discriminant validity, the DSM-ADHD-SRS Inattention, Hyperactivity and Impulsivity subscales were not significantly correlated with BASC-2 Anxiety and Somatization subscales. A mixed model repeated measures ANOVA identified a significant interaction between ADHD diagnostic subtype (Inattentive, Combined) and the BASC-2 and SRS scores and can be accounted for by both ADHD subtypes receiving similar scores on inattention, but the combined subtype demonstrating higher impulsivity and hyperactivity scores than the inattentive subtype. Finally, a Receiver Operation Characteristic (ROC) analysis was used to determine differences of sensitivity, specificity, positive predictive value, and negative predictive value, when the BASC-2 and SRS scores are used to differentiate the Inattentive and Combined subtypes.

Conclusion: These data suggest that it is valuable to examine both BASC-2 and DSM ratings of inattention and hyperactivity in clinical evaluations. While these ratings share common variance, each measure provides unique information in establishing current levels of functioning. Findings with these measures are also consistent with prior research indicating that inattention and hyperactivity are related but unique symptom domains. Because the BASC-2 is a well-established measure, similarities in performance provide validity evidence for the SRS.

66. Cultural Exchange Trip in Marriage & Family Therapy
Sarah Hechter | Marriage and Family Therapy

Rationale: The purpose of this trip was to visit Cambodia and to a 3-Day Genogram Workshop with the undergraduate and Master’s students at the Royal University of Phnom Penh (RUPP). The students in this program will be one of the first generations of mental health clinicians with a formal college training since the Cambodian Genocide during the Khmer Rouge between 1975 and 1979.

Objective: This workshop was held to help open international relations in Marriage and Family Therapy and to provide the Cambodian students a more expansive assessment to use with their clients. Many of the students studying at RUPP already see clients, despite that they have not finished their training. This workshop was held to help those students learn assessment tools that could immediately be applied to the populations the students serve.

Conclusions: The students at RUPP were receptive to the workshop and expressed appreciation for learning assessment tools that they could use immediately with their clients. Cambodia is facing a mental health crisis as many communities do not have a physician or counselor to help those who have mental health problems. This workshop was one that reached current mental health counselors in Cambodia and gave them tools that could be put to immediate use to help Cambodians facing mental health issues.
67. **Memory Conformity**  
Amy McAuley, Colleen Parks | Psychology

Studies of memory conformity have shown that participants’ memory can be influenced by confederates’ responses (Roediger, Meade, & Bergman, 2001). The goal of the current study was to replicate memory conformity effects on recognition and to examine a potential boundary condition of the effect. We investigated whether the role of the participants, or their orientation toward the memory test, would alter the effect. To that end, participants either graded a confederate’s performance on a memory test or took a recognition test that included the confederate’s responses. We hypothesized that participants in the grading condition would be less susceptible to the conformity effect when placed in a more authoritative role. All participants studied words under deep and shallow processing conditions. In the test phase participants were assigned to the grading or to the standard condition. In the grading condition they ranked the confederate’s answer on a 6-point scale ranging from “sure correct” to “sure incorrect”. In the memory condition, participants gave old/new responses on a 6-point scale ranging from “sure new” to “sure old”. Results showed that participants were more biased in the standard condition than in the grading condition, supporting the hypothesis. These results suggest that participant’s orientation to a memory test can influence their likelihood to conform.

68. **Postauricular and Startle Blink Reflexes Capture Anticipatory and Consummatory Emotional Deficits in Psychopathy**  
Stephany M. Molina, Meghan E. Pierce, Stephen D. Benning | Psychology

Psychopathy is a personality disorder that can be divided into two factors: fearless dominance (FD) and impulsive antisociality (IA). FD, but not IA, has been linked to reduced fear-potentiated startle and appetitive deficits. The role of anticipatory processing in the context of this model remains unclear. This study investigated anticipatory and consummatory processing in psychopathy in a clinically depressed community sample. Participants viewed emotional pictures, listened to emotional sounds, and saw geometric shapes that served as anticipatory cues associated with each stimulus valence. FD correlated with reduced startle blink modulation during aversive vs. neutral cues and with reduced postauricular reflex modulation during pleasant vs. neutral cues. IA was associated with reduced startle blink modulation during aversive vs. pleasant sounds. Correlations with psychopathy revealed that those high in both FD and IA showed enhanced potentiation during aversive vs. neutral sounds, whereas those high in FD but low in IA showed no such startle blink potentiation. Additionally, those high in FD but low in IA showed reduced postauricular reflex potentiation during pleasant vs. neutral sounds and reduced inhibition during aversive vs. neutral sounds. Our results suggest anticipatory emotional processing deficits in those high in FD and depression, but not in IA or psychopathy. Conversely, FD was associated with greater appetitive and reduced defensive reactivity during sounds, but only for those low in IA.

Presentation: Society for Psychophysiological Research 56th Annual Meeting (September 2016)
Redefining Tradition: Generational Differences in Same-Sex Couples’ Surname Decisions
Carrie R. Underwood, Sarah E. Thoman, Jennifer E. Buck, Rachael D. Robnett, Mustafa Barakat | Psychology

In most heterosexual marriages, the woman adopts her partner’s surname as dictated by traditional gender norms. Decisions related to marriage and intimacy are major developmental milestones (Arnett, 2000; Erikson, 1968), and may be influenced by generational differences. Research has yet to explore whether generational differences influence how same-sex couples make decisions regarding surnames. The current study is ideally situated to examine age differences because of the large participant age range.

The current study used a cross-sectional mixed-methods approach to investigate how same-sex couples navigate surname changing practices. Data were collected from 171 participants in committed same-sex relationships. Participants provided rationales for whom in their relationship would change their surname upon marriage. Chi-square analyses revealed significant generational differences in regards to surname choices. We used thematic analysis (Braun & Clark, 2006) to code qualitative responses explaining participants’ surname rationales. Responses were categorized into macro-codes that were mutually exclusive and several micro-codes that were not mutually exclusive. Qualitative results offer a rich interpretation of the rationale behind same-sex couples’ surname decisions. This study provides quantitative information regarding same-sex couples surname trends and qualitative data regarding the couples’ surname change rationales. This study provides insight into a relevant sociohistorical phenomenon now that same-sex couples have the right to get married in the United States. Additionally, this study will provide information about a population that has been largely ignored in research.

Presentation: Gender Development Research Conference (October 2016)
Presentations

8:45 – 9:00am (#70) Monica Munoz, Marriage and Family Therapy Program

9:00 – 9:15am (#71) Cecelia Gonzalez, Department of Criminal Justice

9:00 – 9:15am (#72) Eun Min Hwang, Department of Hospitality Administration

9:30 – 9:45am (#73) Dory Mizrachi, Department of Criminal Justice

9:45 – 10:00am (#74) William Marino, Department of History

10:30 – 10:45am (#75) Miliaikeala Heen, Department of Criminal Justice

10:45 – 11:00am (#76) Jade Mack, Marriage and Family Therapy Program

11:00 – 11:15am (#77) Janna North, Marriage and Family Therapy Program

11:15 – 11:30am (#78) Stephanie Kaplan, Department of Criminal Justice
70. **Latino LGBQ Youth Experience During the Coming-Out Process**  
Monica Munoz | Marriage and Family Therapy

The Latino population in the United States continues to increase. With the increase of the Latino population, Latinos who identify as lesbian, gay, bisexual, or queer (LGBQ) increases as well. Most of the literature on LGBQ individuals and the coming-out process is conducted primarily with White LGBQ individuals. These results may not generalize to Latino LGBQ individuals. There has been minimal inquiry into Latino LGBQ individuals’ experiences during the coming-out process. We know little about Latino cultural values and how culture may influence the coming-out process for Latino LGBQ individuals. This paper highlights the influence that the Latino cultural values of familism, traditional gender roles, and religiosity on the disclosure process. Given the emphasis on the family unit in the Latino culture, marriage and family therapists are best fit to provide mental health services to the community. The proposed study will focus on the lived experiences of LGBQ Latino youth during the coming-out process and how their experiences differ from their White counterparts. The aim is to gain a better understanding of these experiences in order to provide effective mental health services to the Latino LGBQ community.

71. **Gender Differences in College Dating Violence**  
Cecelia Gonzalez, Terry Meithe, Alexis Kennedy | Criminal Justice

Intimate partner violence (IPV) is a global social problem. In the U.S. alone, an average of 10 million people experience abuse by an intimate partner (NCADV, 2015). Within the context of college dating relationships, previous research indicates that about one-third of couples will experience some form of dating violence (Luthra and Gidycz, 2006). Early childhood histories of violence are widely recognized as a risk factor for IPV, both as victim and perpetrator. However, little research has examined gender differences in the various risk factors for IPV. Using secondary data from a sample of undergraduate students at a large U.S. university, the current study explores the nature and magnitude of gender differences in the risk factors for college dating violence. The primary results of this study indicate women and men have different pathways to IPV both as perpetrators and victims, suggesting that there is a need for gender-based prevention and intervention at the college level. These results are discussed in terms of limitations and future research recommendations.
Exploratory Study of In-Flight Foodservice Attributes and Their Influence on Generation Y Passengers’ Willingness To Pay
Eun Min Hwang, Yen-Soon Kim | Hospitality Administration

Due to the rapid changes in customer demands and expectations, various industries are investing a significant amount of time and money in developing better ways to keep up with such needs. Moreover, personalization of the products and services is becoming an essential component to remain competitive among the various companies. Though airlines have continuously worked on redesigning in-flight foodservice for international flights to accommodate the expectation of the passengers (De Syon, 2008), there is a lack of systematic procedure in the airline industry. For airline industry which constantly aims to improve their financial status, innovativeness is an essential piece to be considered (Sandvik, Duhan, & Sandvik, 2014). Therefore, airlines have continuously worked on redesigning in-flight foodservice not only to accommodate but exceed the expectation of the passengers (De Syon, 2008). However, before introducing a new product or service, it is crucial to evaluate the need and the value of them through market trials. Thus, the research attempts to conduct a pilot study to investigate airline passengers’ perceptions of the in-flight foodservice to ensure its smooth function.

The primary purpose of the research is to 1) rank the in-flight foodservice attributes that airline passengers may appreciate, 2) examine the airline passengers’ willingness to pay for such attributes, and 3) investigate airline passengers’ willingness to reserve them online.

Presentation: The 22nd Graduate Education & Graduate Student Research Conference in Hospitality & Tourism (January 2017)
74. Persistent Mythologies of a Defiant West  
William Marino | History

This research synthesizes a few American West historians with primary sources to analyze the way mythologies about the region ignored environmental and human realities on the “frontier”. The fields of American West and Environment History are intertwined in many ways, and this poster shows why they cannot be separated. Deploying historiography bolstered by the use of maps and ads from the 1800s, I demonstrate that the romanticized notions of life on the “frontier” successfully sold against the challenging realities of the West. Even with attempts to express the arduous environment in the region, many individuals bought arbitrarily designated 160-acre lots from the government with the promise of receiving farmable land. The myths of this region persist today, and complicate the ability of many historians to define where and what the “West” actually is. This poster is not the conclusion of my research on this topic, but is both building on the scholarship of others and towards my own thesis work in Environmental History. Understanding the intersections between myth and reality is essential to the story of the United States, especially Americans’ relationship with their Environment.

75. Reactions to the Video Vanguard: Individual Differences and Receptivity to Police Use of Visual Monitoring Technology  
Miliaikeala S.J. Heen, Joel D. Lieberman, Terance D. Miethe | Criminal Justice

Over the last decade, technological improvements have revolutionized the capacity for police to gather visual information and conduct surveillance. Police departments across the United States are increasingly developing pilot programs to integrate new visual monitoring technology in the form of unmanned aerial vehicles (i.e., drones), and body worn cameras into daily operations. Despite the many benefits of using visual monitoring technologies in police operations, public attitudes toward this technology are mixed. Past research suggests that support for visual monitoring technology is highly contextual, and often varies by how the technology is used and who is using the technology (i.e., federal government, state or local police, private business, etc.). In addition, concerns regarding privacy and excessive surveillance reduce support for this technology. However, it remains largely unknown whether citizens’ support for aerial drones and body worn cameras is influenced by socio-demographic characteristics and/or criminal justice related attitudes. This paper presents results from a national survey examining the relationship between individual differences and support for visual monitoring technology. The potential implications of these findings for public policy, and law enforcement practices are discussed.

Presentation: 72nd Annual Meeting of the American Society of Criminology (November 2016)
76. **Thinkin’ Kinkin’ : A Modern Look at Current Kink Research in Psychotherapy**  
Jade Mack, Coreen Haym, Sarah Hechter Coreen Haym, Sarah Hechter | Marriage and Family Therapy

**Background:** Recent research related to consensual BDSM/kink has shifted significantly from pathology to exploration and inclusion (Barker, 2013). Mental health professionals are becoming more cognizant of the importance of kink-aware psychotherapy in the context of diversity and taking a non-judgmental stance dedicated to unconditional positive regard. Therapeutic communities continue to debate the health of these activities, while kink participants continually report levels of sexual satisfaction and mental health higher than or comparable to those who do not practice. (Wismeijer & Van Assen, 2013)

**Theoretical Perspective:** An overview will be provided to examine the present direction and focus of current kink research addressing consent, self-awareness, personality traits, legal issues, categorization of kink, clinical bias, discrimination, psychobiology, and overlaps with polyamorous and queer identities. Research outcomes suggest there is a practice of communication, negotiation, and consent that occurs within BDSM players that will prove useful in sexual communication for the general population.

**Significance to the Field:** Experiencing discrimination in most contexts, kink-identified persons find themselves managing visibility for reasons of emotional, physical, legal consequences and safety. Mental health clinicians require training and education related to BDSM sexuality to provide effective services. Further research is needed in all areas of kink practice to adequately address the needs and services of the community as well as reduce oppression and discrimination in the field.

Presentation: Society for the Scientific Study of Sexuality Annual Conference (November 2016)

77. **Deception in the Therapeutic Process: Recognition, Implications, and Intervention**  
Janna North, Carly Shadid, Katherine M. Hertlein | Marriage and Family Therapy

Deception within a relationship is more than just the act of lying. Deception can be defined as communication that is knowingly transmitted by one person to create a false belief or conclusion. This paper is seeking to explore deception in its various forms and investigate the effects of deceptive acts on the family system. Implications that deception has on the therapeutic process are discussed, and interventions and techniques for the marriage and family therapist are proposed.
Since the September 11, 2001 attacks, the United States has placed an increased focus upon government and private agencies to engage in surveillance practices in order to combat terrorism. Legal scholars, as well as the American Civil Liberties Union (ACLU), have questioned the constitutionality of the advancement of surveillance practices in government agencies and the role private agencies play in assisting federal agencies in criminal investigations. The passing of the U.S. Patriot Act soon after 9-11 in 2001, expanded the surveillance capabilities of law enforcement officials allowing both federal and state agencies to legally use wiretaps on communication and to access sensitive data on subjects of interest, so long as their investigation was justified in fighting terrorism.

Using the Globalization of Personal Data (GPD) survey questionnaire from 2006, the goal of this research project is to identify how individuals in the U.S. perceive the transfer of their personal data between government and private agencies. Through non-probability online quota sampling methods, respondents will be stratified into five different racial strata in order to examine their levels of knowledge and awareness of current surveillance technology and legislative policies. This research project seeks to examine the extent to which citizens in the U.S. are either concerned or unconcerned about surveillance being conducted through data mining by government and private agencies, and will also examine socio-demographic differences between respondents. Ultimately, this research represents an attempt to establish a dialogue for future policy makers discussing how citizens perceive the “dataveillance” capabilities of government and private agencies, and whether current legislation goes far enough to protect citizens from unreasonable government intrusions.

Presentation: American Society of Criminology (November 2016)
Social Science and Fine Arts
Poster Session E – Ballroom

Presentations

9:15 – 9:30am (#79) Amaya Worthem, School of Journalism

9:30 – 9:45am (#80) Janelle Evans and Ryan Fowler, Department of Art

9:45 – 10:00am (#81) Allison Cox, Department of Communication Studies

10:30 – 10:45am (#82) Thaddeus Celia-Zoellner, Department of Art

10:45 – 11:00am (#83) Jocelyn Apodaca, School of Journalism and Media Studies

10:45 – 11:00am (#83) Brandow Lacow, Department of Art
79. **Broadcast News Directors’ Perceptions of Race: A Survey of Psychological and Sociological Measures**  
Amaya Worthem | Journalism and Media Studies

Understanding the role of media in the lives of consumers has been a longstanding concern of various scholars. Although the news media do not tell consumers what to think explicitly, they do imply what consumers should think, via the contexts in which news is presented. The central thrust of this thesis is a psychological and sociological perception study of news directors’ implicit and explicit perceptions of race when creating news content. The aim is to discover whether an implicit or explicit racial bias can be found amongst some news directors when covering racial minority groups. A better understanding of bias provides valuable insights on what media practices to utilize when covering diverse groups. Data collection is currently underway based on a sample of over 600 broadcast affiliate news directors.

80. **Animation: A Microcosm of Culture and Technology**  
Janelle Evans, Ryan Fowler | Film

Animation has been a part of humanity’s visual culture for as long as humans have lived in groups, and even predates codified linguistic communication. From the first flip books, to carved lanterns which created shadow stories when turned, to the modern usage of three dimensional drawing and screen projections, the telling of stories by rendering an image in motion, could be a means of defining humanity that is far more reliable than DNA, given that we share fifty percent of our DNA with banana. As human ability to communicate, and indeed to shape the very world in which we live, has grown, surpassing the hopes, dreams, and fears of many, sometimes even surpassing the nightmares that such cautionary myths as King Midas and his enriching touch that led to starvation taught, the need to express our connection to and fear of our ever-changing human story, had led to a greater use of, and thus greater development of animation that is to say, the ability to tell stories in images that do not necessarily reflect our own image, and thus can relay our anxieties and needs, without encroaching upon our physic need to believe in our own righteous actions, and invincibility. Thus animation, far from the child’s play that many relegate it to, is the pulse by which we can measure the health of our relationship with technology.
Allison Cox | Communication Studies

The importance of the family’s role on how they can help break down societal stigmas surrounding intellectual disabilities has not been explored immensely. The way that families with a child with an intellectual disability construct their identity is partially through already socially constructed ideas. Their identity is also constructed through their quality of life. Thus it is important to study the ways that negative societal stigmas can be broken down, and positive attributions are built. A large aspect of achieving a quality of life for an individual with an intellectual disability is through the family unit. Their identity, if positive can be carried on through generations and can start to change negative social ideas or stigma of intellectual disabilities, improving their quality of life. Good family communication is vital for all members of the familial unit because they all rely on each other for support. Households with a child with intellectual disabilities are faced with stressors such as behavioral outbursts and need effective communication to move forward. Through studying family communication strategies, the difficulties that these families face that have an impact on their quality of life, not just for the individual with intellectual disabilities but the family unit as a whole can be discovered. By applying communication theories to this phenomenon, families can learn communication strategies with the community that will help achieve this well-being.

82. The Process that Translates Language to Sculpture is Essentially a Coding System
Thaddeus Celia-Zoellner | Art

Information is, in the era of smartphones and Google, so ubiquitous that it has become valueless, consumed and discarded. By translating language, the framework upon which information is dependent, into a sculptural system the information presented is no longer easily consumed. The process that translates language to sculpture is essentially a coding system, allowing the sculptural objects to be read, providing the viewer reversed the process. The viewer must decode the objects. This means that the information now elevated to a much higher state of value, as it is no longer freely given. Sculpture is “as a medium” unique in that it reframes its own context. By using sculpture specifically, as opposed to any other artistic medium, this work consciously draws on this capacity. By using sculpture as the medium in which language is encoded, the aim of this project is very specific; to reframe how we think about information, and more importantly to reevaluate how we value it.
83. True Self and the Uses and Gratifications of Instagram among College-Aged Users  
Jocelyn Apodaca | Journalism and Media Studies

With more than 300 million daily users, Instagram has rapidly become one of the most widely used social networking apps worldwide. Research has shown that the majority of users are females between the ages of 18-29 (Duggan et al. 2015). This study investigates relationships between motivations for using Instagram, whether users are portraying their true-selves and how their usage affects life satisfaction and well-being. A quantitative survey was used to collect data from more than 150 students at the University of Nevada at Las Vegas students. Participants were asked to provide answers regarding their habits for using Instagram, whether their online portrayal of self-reflected their true self and determine overall life satisfaction. The motives studied in this research include: interpersonal communication, entertainment, information seeking, diversion and identity (Sheldon and Bryant 2015; Ting 2014; Papacharissi and Mendelson 2011; Sundar and Limperos 2013). Results should support the hypotheses that there will be a significant, positive relationship between the presentation of true self and each of the use motives. Other hypotheses state that there will be a significant, positive linear relationship between life satisfaction and each use motive. There is one research question that asks if there is a positive relationship between female usage of Instagram and motive. Results, available and defended well before the graduate forum, should support should which of the five motives are more likely to influence young women using Instagram in the presentation of their true selves online.

84. "Out at Home"
Brandon Lacow | Art

The expression “I don’t care what gay people do as long as they do it in the privacy of their own home” has continued to linger over me for as long as I can remember. How does someone express themselves in a home that still deals with and invites public relations? I begin to question what could a queer home look like if it is not inhibited by social norms or expectations. Is there more than a rainbow flag on the patio to represent a queer aesthetic of home decor?

"Out at Home" is a comparative exploration of two realities, a dynamic manifestation of the queer in conflict with an imagined traditionalism. By using the metaphor of domestic space, with its connections to comfort, sanctuary, safety, and privacy. At the same time, home can be a space of public engagement where one entertains guests taking on a public persona that comes with a bombardment of expectations. The social aspect of being queer can seem intimidating when faced with a public sphere that may react with hostility, indifference, rejection, or the threat of physical harm. These two opposing domestic spaces present a dichotomy of comfort and apprehension. A queer perspective on The Wizard of Oz, interpreted in terms of cheeky camp, mundane domesticity, and bold queerness. To be able to go home be it Dorothy returning to Kansas or the freedom to be one’s authentic self with your friends and family is an accomplishment.
Education
Poster Session A – Ballroom

Presentations

9:15 – 9:30am  (#85) Celeste Calkins and Manognya Murukutla, Department of Educational Psychology & Higher Education

9:30 – 9:45am  (#86) Erdogan Kaya, Department of Teaching & Learning

9:45 – 10:00am (#87) Wynn Tashman and Heather Thompson, Department of Educational Psychology & Higher Education

10:30 – 10:45am (#88) Rebecca Gates, Department of Educational Psychology & Higher Education

10:45 – 11:00am (#89) Eunhye Choi, Department of Educational & Clinical Studies

11:00 – 11:15am (#90) Lucie Vosicka, Department of Educational Psychology & Higher Education

11:15 – 11:30am (#91) Kristina Lindquist and Terrance Miller, Department of Educational Psychology & Higher Education
85. Are There Benefits to Combining Social and Cognitive Writing Interventions?: A Mixed Methods Investigation
Manognya Murukutla, Celeste Calkins, Matthew Bernacki | Educational Psychology & Higher Education

This mixed methods study examined whether a combined battery of established writing interventions administered to science undergraduates would elicit intended themes, if themes would re-emerge in other reflections, and whether prevalence of themes associated with motivational changes. Students completed five reflections over a semester on their own time on the course’s learning management system site. Each prompt elicited its intended theme, which was also prevalent in additional writings. Prevalence of themes associated significantly with unanticipated motivational changes (e.g., relevance with decreased utility value), indicating potential influence of task conditions and co-occurring themes. Findings suggest sufficient implementation fidelity, but that extensive, systematic exploration is needed to determine how combining reflective tasks influences the ways reflections induce changes in motivation and beliefs.

86. Introducing Engineering Design to an Elementary Science Teaching Methods Course through Educational Robotics and Exploring Changes in Pre-service Elementary Teachers’ Nature of Engineering Views
Erdogan Kaya, Anna Newley, Hasan Deniz, Ezgi Yesilyurt | Teaching & Learning

The use of educational robotics in introduction to engineering courses is not new in higher education institutions. However, integrating engineering through robotics in elementary teacher training is unique. In this article, we described how we used the Lego Mindstorms EV3 Kit as part of a Next Generation Science Standards (NGSS) aligned engineering unit in an elementary science teaching methods course. Pre-service elementary teachers (PSTs), with no prior programming or robotics experience, were introduced to NGSS science and engineering practices, nature of engineering (NOE) ideas, and the Engineering is Elementary (EIE) Engineering Design Process (EDP) via the Lego Mindstorms EV3 Kit. We also assessed the changes in PSTs’ NOE views before and after the engineering unit. We found that PSTs improved their NOE views after experiencing the engineering unit.
87. An Innovative Model for Pre-Service Training at the University of Nevada, Las Vegas
Wynn Tashman, Samuel Song, Heather Thompson, Rebecca Nathanson | Educational Psychology & Higher Education and Law

Psychology and law PhD/JD degree programs have emerged over the past three decades as the second most common combination of PhD/JD programs. PhD/JD programs have numerous training benefits for graduate students in both law and psychology professions such as enhanced entry-level credentials and diverse career options. However, there is only one PhD/JD program in Law and School Psychology, unfortunately, despite clear benefits to the field and practice (e.g., law and ethics, enhanced skills for school consultation). By presenting this innovative model of training -- the PhD/JD in School Psychology -- and discussing its implications of the field, this poster is anticipated to address the gap and spur additional interest in PhD/JD programs in school psychology and the use of legal clinics for training pre-service school psychologists.

Presentation: TSP Conference (February 2017)

88. A Comparative Case Study of Campus Climate at Two MSIs
Rebecca Gates, Gordon Louie, Doris Watson, Kimberly Nehls | Educational Psychology & Higher Education

Campus climate is defined as the extent to which the campus is perceived as open, friendly, communicative, and improving (Worthington, Loewy, Navarro, & Hart, 2008). Rankin and Reason’s (2008) Transformational Tapestry Model was chosen to guide the current study due to the comprehensiveness of its components and for its recognition that, in order for higher education to serve a "broad spectrum of the American populace," institutions must "reflect more accurately the diverse makeup of society" (p. 262). This study utilizes data from a larger exploratory, multiple case study. Participant data for the current study were students at two institutions: a large, doctoral granting research university (Western University, n=10) and a multi-campus two-year college which primarily awards associate’s level degrees and certificates (Southwest College, n=9), both of which are located in the Southwest and have obtained Minority Serving Institution (MSI) status within the last 4 years. Data analysis from Western University has revealed two overarching themes: institutional impact and institutional caution. Data for Southwestern College has been collected, and analysis is currently underway. Initial analysis has revealed two emergent themes: pervasiveness of the commuter culture and precarious optimism. Across both institutions, students recognized the potential that having an MSI designation could bring in terms of awareness, programming, and funding. There has been limited research examining the implications of the growth of these institutions or examination of the changes of institutional behaviors required to meet the needs of increasingly diverse student populations (Nora & Crisp, 2009).
89. **Art Therapy for Children with Autism**  
Eunhye Choi | Educational & Clinical Studies

In order to examine the effect of art therapy on children with autism, the author systematically reviewed the previous literature in the field of special education. In putting key terms as art therapy and autism, the author searched the research studies that examined the effectiveness of art therapy for children with autism. The findings indicated that art therapy was beneficial for children with autism to (1) develop a secure attachment, (2) enhance communication skills, (3) improve learning skills, and (4) establish a better self-image. Examining how art therapy was used to assist with children with autism, the specific and practical guidelines for practitioners were discussed. It is concluded that a systemic training program should be designed for practitioners to learn how to effectively deliver art therapy and the effectiveness of art therapy should be monitored and consistently evaluated.

90. **How Precisely Do Logged Events Represent Students’ Learning Processes?: Aligning Students’ Reports with Resource Use**  
Lucie Vosicka, Matthew Bernacki | Educational Psychology & Higher Education

Logs of learners’ behaviors have been increasingly used to trace self-regulated learning behaviors that predict performance (Bernacki, Byrnes, & Cromley, 2012) and to provide actionable insights to learners about their learning behaviors (Dominguez & Bernacki, 2016). Learning management systems (LMS) that host resources (such as syllabi, lecture notes, or study guides) that supplement face-to-face lectures are an increasingly common source of trace data in higher education. However, use of a resource constitutes only a coarse and incomplete indicator of students’ learning behaviors. The ubiquity of LMS log-files makes the log-files a practical resource, but the validity of inferences that can be drawn from the logged behaviors remains in question. This study examined whether students’ self-reports of their learning behaviors validate preconceived notions about the processes of self-regulated learning that various resources might indicate. Analyses primarily examined the homo/heterogeneity with which students described their resource use to determine whether use of a resource may indicate one or many possible processes of self-regulated learning. Heterogenous endorsement of resource use was observed across all resources but a primary use was identified for some resources. Results indicate that logged uses of resources may provide insufficient evidence to infer occurrence of a specific process of self-regulated learning, and that confidence in inferences should vary by the resource used.
91. Using Individual Exam Analysis to Investigate Test Taking Behavior
Terrence Miller, Kristina Lindquist | Educational Psychology & Higher Education

The Examsoft testing software “snapshot” feature captures information on a student’s progress through an exam, providing frequent timestamps for question responses. These data can be mined for information concerning each student’s test-taking tendencies, with the potential to reveal flaws. Extracting this information from the raw data is challenging. We developed a method whereby we could utilize the “snapshot” data to analyze several aspects of a student’s test-taking tendencies. Personalized strategies for addressing test-taking deficiencies are then crafted based on the results. Each multi-disciplinary exam has approximately 200 multiple-choice, randomized questions. Student “snapshot” data are downloaded into an Excel worksheet. Additional worksheets with a series of formulas were developed that provide the following: answers changed wrong-to-right, right-to-wrong, and wrong-to-wrong; average time spent/question/discipline on first viewing; average time/question/discipline on subsequent views; questions viewed more than twice and number incorrect; number incorrect in each quartile of exam. Initial analyses on struggling students have revealed significant test-taking issues, e.g. rushing through questions, returning to questions excessively, and ineffectively changing answer choices. A learning specialist meets with students individually to discuss the results and develop strategies to improve the student’s test-taking performance. We have targeted the analysis for specific individuals identified by our learning specialist, who has found this to be a valuable tool for assessing a student’s test-taking skills and consequently tailoring recommendations for improvement.

Presentation: International Association of Medical Science Educators Annual Meeting (June 2016)
INDEX

Allard, Meredith ................................... 56
Abdalla, Amro ...................................... 18
Anderson, Cheryl ................................ 99
Aepopada, Jocelyn ................................. 122
Aquino, Mayara .................................... 26
Atian, Carlos ....................................... 91
Baggio, Mary ....................................... 99
Bailey, Joshua ..................................... 21
Barker, Leland ..................................... 86
Bejinariu, Alexa ................................. 46
Bhaduri, Moinak .................................. 20
Birds, Jonathan ................................... 53
Boppae, Breanna ................................... 52
Boyer, Cassandra .................................. 96
Bradley, Jonathan ................................ 54
Breckling, Sean ................................... 17
Bui, Quynh .......................................... 72
Bukhary, Syeda Saria .............................. 70
Bunker, Steven .................................... 75
Calkins, Celeste ................................... 124
Cao, Li Feng ........................................ 92
Capinding, Maria ................................. 88
Casey, Evan .......................................... 44
Castrejon, Jorge Adrian .......................... 45
Celia-Zoellner, Thaddeus ......................... 121
Chauncey, Robert ................................. 86
Chen, Chao .......................................... 29
Chen, Cheng ........................................ 69
Chen, Yen-Ling .................................... 104
Choi, Eunhye ....................................... 126
Clark, Theresa ...................................... 14
Cogliano, Megan ................................... 58
Collins, John William ............................ 74
Cox, Allison ........................................ 124
Daniels, Wilisha .................................... 50
Das, Sanjana ........................................ 26
Deever, Donald ..................................... 60
DiBenedetto, Katelyn ............................. 33
DiPaolo, Madeline ................................. 93
Eggleston, Jeffrey .................................. 91
Ehsani, Sahar ....................................... 66
Emami, Ashley .................................... 103
Evans, Janelle ..................................... 120
Foote, Richard ..................................... 78
Fowler, Ryan ........................................ 120
Galante, Marina ................................... 105
Galar, Kendall ...................................... 72
Gates, Rebecca ..................................... 125
Gavrilo, Yulia ....................................... 105
Gharehdaghimollahajlloo, Samad ............. 68
Gonzalez, Cecelia .................................. 114
Grah, Kory .......................................... 84
Graves, Stacy ...................................... 109
Greenwood, Joshua ............................... 20
Guevara, Dafne ..................................... 62
Harkanson, Russell ................................ 69
Harris, Phillip ...................................... 63
Hartounian, Arin ................................... 79
Hatch, Kai ........................................... 86
Hechter, Sarah ...................................... 109
Heen, Miliaikeala .................................. 116
Herlosky, Kristen .................................. 35
Homtong, Nudthawud ............................ 15
Horie, Wonjoon ..................................... 57
Hunt, Aaron .......................................... 84
Hussy, Julia ......................................... 96
Hwang, Eun Min .................................... 115
Hyer, Chandler ..................................... 90
Isaacs, Michael ..................................... 22
Jazaei, Robabeh .................................... 68
Jordan, Anthony .................................... 47
Kaplan, Stephanie .................................. 118
Karas, Dale .......................................... 27
Kaya, Erdogan ....................................... 124
Keach, Levi .......................................... 32
Kelly, Bridget ....................................... 45
Kennedy, Logan ..................................... 51
Khag, Vincent ....................................... 85
Kidwell, Josiah ..................................... 41
Kogler, Lynette ..................................... 67
Kollmer, Matthew .................................. 63
Lacow, Brandon ..................................... 122
Lapping-Carr, Leizle .............................. 98
Larson, Kathleen ................................. 108
Lautzenheiser, Daniel ............................. 15
Lay, Holly ........................................... 62
Lee, Sugnchul ....................................... 28
Lee, Bern ............................................. 32
Linquist, Kristina .................................. 127
Lundering-Timpano, Maryse ...................... 51
MacIntosh, Sarah .................................. 35
Mack, Jade .......................................... 117
Marino, William ................................. 116
Martin, Holly ....................................... 30
Masaki, Erika ....................................... 46
Mast, Daniel ......................................... 14
McAuley, AmyJane ................................. 110
McClaren, Jayson ................................... 92
McClurg, Devon .................................... 93
McDaniel, Courtney ............................... 38