Graduate & Professional Student Research Forum

Hosted by the Graduate College and Graduate & Professional Student Association
University of Nevada, Las Vegas
Student Union
Saturday, March 21, 2015
The Graduate & Professional Student Research Forum is co-hosted 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.
2015 Graduate & Professional Student Research Forum
Schedule of Events

Abstracts at a glance

**Platform Sessions**

9:00 – 11:30am Science Session A: room 205

9:00 – 11:30am Science Session B: room 207

8:45 – 11:30am Science and Engineering Session C: room 208A

8:45 – 11:45am Humanities and Fine Arts Session A: room 208B

9:00 – 11:30am Social Science Session A: room 208C

9:00 – 11:30am Social Science Session B: room 209

9:15 – 11:30am Social Science Session C: room 211

9:00 – 11:30am Social Science and Law Session D: room 213

8:30 – 11:30am Social Science Session E: room 218

8:30 – 11:30am Social Science Session F: room 219

8:30 – 11:30am Education Session A: room 222

**Poster Sessions**

8:45 – 10:00am Science and Engineering Session A: Ballroom

Posters 1 – 5

10:15 – 11:30am Posters 6 – 10

8:45 – 10:00am Science and Engineering Session B: Ballroom

Posters 11 – 15

Pages

Abstracts at a glance 7 – 25

Platform Sessions 27 – 35

Science Session A: room 205

Science Session B: room 207

Science and Engineering Session C: room 208A

Humanities and Fine Arts Session A: room 208B

Social Science Session A: room 208C

Social Science Session B: room 209

Social Science Session C: room 211

Social Science and Law Session D: room 213

Social Science Session E: room 218

Social Science Session F: room 219

Education Session A: room 222

Poster Sessions 143 – 148

Science and Engineering Session A: Ballroom

Posters 1 – 5

Science and Engineering Session B: Ballroom

Posters 11 – 15

149 – 153
### 2015 Graduate & Professional Student Research Forum
#### Schedule of Events

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 – 11:30am</td>
<td>Science and Engineering Session B: Ballroom (cont.)</td>
<td>161 – 164</td>
</tr>
<tr>
<td>8:45 – 10:00am</td>
<td>Science and Health Science Session C: Ballroom</td>
<td>165 – 170</td>
</tr>
<tr>
<td>10:15 – 11:30am</td>
<td>Posters 25 – 29</td>
<td>171 – 175</td>
</tr>
<tr>
<td>8:30 – 10:00am</td>
<td>Science and Health Science Session D: Ballroom</td>
<td>177 – 183</td>
</tr>
<tr>
<td>10:15 – 11:30am</td>
<td>Posters 36 – 40</td>
<td>184 – 188</td>
</tr>
<tr>
<td>9:00 – 10:00am</td>
<td>Social Science and Law Session A: Ballroom</td>
<td>189 – 193</td>
</tr>
<tr>
<td>10:30 – 11:30am</td>
<td>Posters 45 – 48</td>
<td>194 – 197</td>
</tr>
<tr>
<td>9:00 – 10:15am</td>
<td>Social Science Session B: Ballroom</td>
<td>199 – 204</td>
</tr>
<tr>
<td>10:30 – 11:30am</td>
<td>Posters 54 – 57</td>
<td>205 – 208</td>
</tr>
<tr>
<td>9:00 – 10:00am</td>
<td>Social Science Session C: Ballroom</td>
<td>209 – 213</td>
</tr>
<tr>
<td>10:30 – 11:30am</td>
<td>Posters 62 – 65</td>
<td>214 – 217</td>
</tr>
<tr>
<td>8:30 – 9:30am</td>
<td>Education Session A: Ballroom</td>
<td>219 – 223</td>
</tr>
<tr>
<td>9:30 – 10:30am</td>
<td>Posters 70 – 73</td>
<td>224 – 227</td>
</tr>
</tbody>
</table>
### 2015 Graduate & Professional Student Research Forum

#### Schedule of Events

<table>
<thead>
<tr>
<th>Time</th>
<th>Event Description</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 – 11:30am</td>
<td>Education Session A: Ballroom (cont.)</td>
<td>228 – 230</td>
</tr>
<tr>
<td>Posters 74 – 76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:45 – 10:00am</td>
<td>Fine Arts A: Ballroom</td>
<td>231 – 236</td>
</tr>
<tr>
<td>Posters 77 – 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 – 11:30am</td>
<td>Posters 82 – 85</td>
<td>237 – 240</td>
</tr>
<tr>
<td>Index</td>
<td></td>
<td>241 – 243</td>
</tr>
<tr>
<td>Noon – 1:30pm</td>
<td>Luncheon and Awards Ceremony</td>
<td>Ballroom</td>
</tr>
</tbody>
</table>
Science Platform Session A: Room 205

9:00 – 9:15am  Facilitation and Competition within Joshua Tree (*Yucca brevifolia*) - Spiny hopsage (*Grayia spinosa*) Nurse-Plant Associations. *Author:* Eric Chameroy, School of Life Sciences

9:15 – 9:30am  Analyzing Caterpillar-Ant Interactions in Three Butterfly Species of the Mojave Desert: Are Caterpillars Buying Protection or Appeasing Potential Predators? *Author:* Alicia Crespin, School of Life Sciences

9:30 – 9:45am  Beryllium: A Simple Metal Cation with Possible Therapeutic Potential towards Type II Diabetes and Various Cancers. *Author:* Ata Ur Rahman Mohammed Abdul, Department of Chemistry

9:45 – 10:00am  A Tubular 3D Force Analysis of Kangaroo Rat Burrowing. *Author:* Alexis Crisp, School of Life Sciences

10:00 – 10:30am  Break

10:30 – 10:45am  A Life Spent Dry: Interactive Effects of Age, Sex, Genotype and Rate of Drying Upon Survival in the Desert Moss *Bryum argenteum*. *Author:* Joshua Greenwood, School of Life Sciences

10:45 – 11:00am  Acute Effects of Dynamic Compression on Heart Rate Variability and Peak Heart Rate while Running. *Authors:* Jenni Kumanchik, John A. Mercer and W.A. Sands, Department of Kinesiology and Nutrition Sciences

11:00 – 11:15am  Characterization of Novel Biosurfactant/Bioemulsifier Producing Bacteria Isolated from Hydraulic Fracturing Waters. *Author:* Anthony Harrington, School of Life Sciences

11:15 – 11:30am  On a Statistical Investigation of the Dependence Structure Between Two Related Time Series: Application to Hurricane Frequency Modeling. *Authors:* Moinak Bhaduri and Chih-Hsiang Ho, Department of Mathematical Sciences

Science Platform Session B: Room 207

9:00 – 9:15am  DNA Twisting and VirB: Mechanistic Insight into a DNA binding Protein Essential for Virulence in the Human Pathogen *Shigella flexneri*. *Authors:* Michael A. Picker, Juan C. Duhart, Joy A. Immak and Helen J. Wing, School of Life Sciences
2015 Graduate & Professional Student Research Forum at a Glance

Science Platform Session B: Room 207 (cont.)


9:30 – 9:45am C-Terminome Web-Application: A Tool to Mine the C-Termini of Human Proteome. *Author:* Surbhi Sharma, School of Life Sciences

9:45 – 10:00am Minimalist vs. Cushioned Running Shoes: Impact Loads Vary with Foot-Strike Pattern. *Authors:* Andrew D. Nordin and Janet S. Dufek, Department of Kinesiology and Nutrition Sciences

10:00 – 10:30am Break

10:30 – 10:45am Non-B DNA Promotes Genetic Diversity in *B. subtilis* Stationary Phase Cells. *Authors:* Carmen Vallin, Amanda A. Prisbrey and Eduardo A. Robleto School of Life Sciences

10:45 – 11:00am Tiling Assembly: A New Tool for Reference Annotation Independent Transcript Assembly and Novel Gene Identification by RNA-Sequencing. *Author:* Kenneth Watanabe, School of Life Sciences

11:00 – 11:15am Studying Tadpoles for Insights into Natural Tissue Regeneration. *Authors:* Cindy X. Kha and Ai-Sun Tseng, School of Life Sciences

11:15 – 11:30am Generalized Markoff Equations, Euclid Trees and Chebyshev Polynomials. *Author:* Donald McGinn, Department of Mathematical Sciences

Science and Engineering Platform Session C: Room 208A

8:45 – 9:00am A Hazardous Ozone Disinfection Byproduct: NDMA Formation and Implications for Water Reuse. *Authors:* Erica Marti, Jacimaria Batista and Eric Dickenson, Department of Civil and Environmental Engineering and Construction

9:00 – 9:15am Established Models of Hydrothermal Fluid Distribution around Porphyry Deposits: The Application of Fluid Inclusion Research to Porphyry Exploration. *Authors:* Wyatt M. Bain, Jean S. Cline, Tim M. Marsh, Department of Geoscience

9:15 – 9:30am Neutron Spectroscopy with Scintillation Detectors Using Wavelets. *Author:* Jessica Hartman, Department of Mechanical Engineering
2015 Graduate & Professional Student Research Forum at a Glance

Science and Engineering Platform Session C: Room 208A (cont.)

9:30 – 9:45am Weathering Profiles at Mawrth Vallis Yield Insight into the Aqueous History and Potential Habitability of Mars. **Authors:** Seth Gainey and Elisabeth Hausrath, Department of Geoscience

9:45 – 10:00am Hydrologic evaluation in a Snow Dominated Watershed Using a Process Based Model. **Author:** Chao Chen, Department of Civil and Environmental Engineering and Construction

10:00 – 10:30am **Break**

10:30 – 10:45am Influence of *Larrea tridentata* on Chloride Concentration in Shallow Desert Soils. **Author:** Sara Gedo, Department of Geosciences

10:45 – 11:00am An Evaluation of Current Practices of Road Maintenance Contracting Methods. **Authors:** Kishor Shrestha and Pramen P. Shrestha, Department of Civil and Environmental Engineering and Construction

11:00 – 11:15am Building Better Climate Models: When Caves and Computers Collaborate. **Authors:** Jonathan Baker and Matthew Lachniet, Department of Geoscience

11:15 – 11:30am Practical Procedure to Measure Mechanical Properties of Vaginal Tissue. **Authors:** Sogol Pirbastami, Brendan O'Toole and Mohamed Trabia, Department of Mechanical Engineering

Fine Arts and Humanities Platform Session A: Room 208B

8:45 – 9:00am HIP Harpsichords: Historically Informed Performance of Early Keyboard Music. **Author:** Monique Arar, Department of Music

9:00 – 9:15am Hartford, Connecticut 1900: The Story of a Suicide. **Author:** Aurora Brackett, Department of English

9:15 – 9:30am Sin City in Tokyo. **Author:** Joleen Long, Department of English

9:30 – 9:45am The Gothic Other in J.M. Coetzee’s “Waiting for the Barbarians”. **Author:** Clancy McGilligan, Department of English

9:45 – 10:00am John Wayne in Spain. **Author:** Kayla Miller, Department of English

10:00 – 10:30am **Break**

10:30 – 10:45am Enlightenment. **Author:** Camilla Oldenkamp, Department of Art
## 2015 Graduate & Professional Student Research Forum at a Glance

### Humanities and Fine Arts Platform Session A: Room 208B (cont.)

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:45 – 11:00am</td>
<td>The Poem as Plastic Art: Mina Loy’s “Brancusi’s Golden Bird”.</td>
<td>Author: Derek Pollard, Department of English</td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Society of Children's Book Writers and Illustrators Conference.</td>
<td>Author: Rebecca Robison, Department of English</td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>Poetry as an Ethical Act: The Human Will in T. S. Eliot’s “Ash Wednesday”.</td>
<td>Author: Michelle Villanueva, Department of English</td>
</tr>
<tr>
<td>11:30 – 11:45am</td>
<td>Lowly Saints in Holy Places: Poetry of Humility &amp; Exaltation.</td>
<td>Author: Denise Weber, Department of English</td>
</tr>
</tbody>
</table>

### Social Science Platform Session A: Room 208C

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Author(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>The Painted Motifs of Cypriot Ceramic Art: A Study of Iconography and Identity.</td>
<td>Author: Paige Bockman, Department of Anthropology</td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Performance or Processing? Effects of Levels of Processing and Divided Attention on Memory-Related Eye Movements.</td>
<td>Authors: Wei An and Colleen Parks, Department of Psychology</td>
</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>Rafts (or floats?) 'Ahoy: Documenting Animal Transportation to Cyprus during the Pre- and Early Neolithic.</td>
<td>Author: Katelyn DiBenedetto, Department of Anthropology</td>
</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>Interactions of Behavioral Training and Ketamine Administration on Changes in Parvalbumin Positive Neurons.</td>
<td>Authors: Monica Bolton, Chelcie Heaney, Andrew Murtishaw, Michael Langhardt and Jefferson Kinney, Department of Psychology</td>
</tr>
<tr>
<td>10:00 – 10:30am</td>
<td>Break</td>
<td></td>
</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>Research with an Agenda: Creationist Media on Archaeological Discoveries.</td>
<td>Author: Krystal Hammond, Department of Anthropology</td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>Identity as a Predictor of Affective Responses in Polyamorous and Monogamous Individuals.</td>
<td>Author: Antoinette Izzo, Department of Anthropology</td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Social Physique Anxiety, Body Surveillance, Ethnic Identity, and Bulimic Symptoms among Mexican American Women.</td>
<td>Authors: Kimberly Claudat and Cortney S. Warren, Department of Psychology</td>
</tr>
</tbody>
</table>
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session A: Room 208C (cont.)

11:15 – 11:30am  Picrolite Carving in Neolithic Cyprus: An Introduction. Author: Forrest Jarvi, Department of Anthropology

Social Science Platform Session B: Room 209

9:00 – 9:15am  Self-infliction of Pain as Reputational Commodity. Authors: Matthew Martinez and Pierre Lienard, Department of Anthropology

9:15 – 9:30am  Chronic LPS-induced Inflammatory Response in a Diabetic Model of Alzheimer’s Disease. Authors: Andrew S. Murtishaw, Chelcie F. Heaney, Monica M. Bolton, and Jefferson W. Kinney, Department of Psychology

9:30 – 9:45am  A Natural History of the Drag Queen Phenomenon. Authors: Michael Moncrieff and Pierre Lienard, Department of Anthropology

9:45 – 10:00am  Serious Drinking Games: Christian Men’s Negotiation of Corporate Drinking Practices and Religious Identity in South Korea. Author: Alex Nelson, Department of Anthropology

10:00 – 10:15am  Break

10:30 – 10:45am  Do People Hear Multiple Levels of Metrical Hierarchies in Music? Authors: Jessica E. Nave-Blodgett, Erin E. Hannon and Joel S. Snyder, Department of Psychology

10:45 – 11:00am  Osteoarthritis in the Elbow and Knee from a Modern Documented Cemetery Collection in Cyprus: Using “New” Bones to Understand “Old” Ones. Author: Cristina Tica, Department of Anthropology

11:00 – 11:15am  Ethnic and American Identity as Correlates of Eating Pathology in College Women. Authors: Liya Rakhkovskaya and Cortney S. Warren, Department of Psychology

11:15 – 11:30am  Is the Romantic/Sexual Kiss a Human Universal? Author: Shelly Volsche, Department of Anthropology
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session C: Room 211

9:15 – 9:30am The Social Consequences of Technological Change: Archaeological Case Studies from the Pre-Pottery Neolithic a Period to the Middle Bronze Age period in the Near East. **Author:** Sarah MacIntosh, Department of Anthropology

9:30 – 9:45am Depression and Dissociation as Predictors of Posttraumatic Symptoms among Community Youth. **Authors:** Emma Ross, Christopher Kearney and Kyleigh Sheldon, Department of Psychology

9:45 – 10:00am The Role of Water Salinity in Limestone Tempered Logandale Gray Ware Ceramic Production in the Moapa Valley, Nevada: An Experimental Approach. **Authors:** William Willis and Karen Harry, Department of Anthropology

10:00 – 10:30am Break

10:30 – 10:45am Categorizing Speech and Song in Childhood and Adulthood. **Authors:** Christina M. Vanden Bosch der Nederlanden, Erin E. Hannon and Joel S. Snyder Department of Psychology

10:45 – 11:00am Evaluating Land Use in the Mojave Sink: Survey Data from Afton Canyon, San Bernardino County, California. **Authors:** Aaron Woods, Barbara Roth and Katelyn DiBenedetto, Department of Anthropology

11:00 – 11:15am Sensory and Motor Deficits in Spanish Speaking Individuals with Schizophrenia. **Authors:** Davor Zink, Liza E. San Miguel and Daniel Allen, Department of Psychology

11:15 – 11:30am Inner Experience during Marathon Running. **Authors:** Stefanie Moynihan and Russell Hurlburt, Department of Psychology

Social Science and Law Platform Session D: Room 213

9:00 – 9:15am “Evidence of Existence”: “Evidence of Occurrence”. **Author:** Joseph Thomson, Department of History

9:15 – 9:30am Unrealistic Weeds of Love and Romance: The Korean Drama and the “Flower Boy” Genre. **Author:** Colby Miyose, Department of Communication Studies

9:30 – 9:45am Access to Justice: A Look at Modelama Exports’ Human Rights Violations. **Authors:** Ani Biesiada and David Hales, School of Law
2015 Graduate & Professional Student Research Forum at a Glance

Social Science and Law Platform Session D: Room 213 (cont.)

9:45 – 10:00am  Client Selected Music Based Effects on Marital and Couples Therapy.  
Author: Kevin Smith, Program of Marriage and Family Therapy

10:00 – 10:30am  Break

10:30 – 10:45am  Profiling Proximal Places: How Street Segment Crime Signature Analysis Can Inform Theory and Practice. Authors: Jonathan Birds and Tamara Madensen, School of Environmental and Public Affairs

10:45 – 11:00am  “Assembly Line of Broken Fingers”: A Roadmap to Combating Occupational Health and Safety Hazards in the Manesar Auto Industrial Belt. Authors: Keivan Roebuck and Craig Friedel, School of Law

11:00 – 11:15am  Ronald Johnson's ARK and the Watts Towers of Simon Rodia. Author: Amber Overholser, School of Environmental and Public Affairs

11:15 – 11:30am  Classification of Metropolitan Communities as a Function of Population and Job Shifts. Author: Al Gourrier, School of Environmental and Public Affairs

Social Science Platform Session E: Room 213: Room 218

8:30 – 8:45am  Police Responses to Domestic Violence and Public Perception. Authors: Kelly Stout and M. Alexis Kennedy, Department of Criminal Justice

8:45 – 9:00am  Miracle in the Mojave: Miracle in the Mojave: Everyday Religion and the Sacralization of Urban Space. Author: Tyler Schafer, Department of Sociology

9:00 – 9:15am  Drive-by-Ethnography: The Bureaucratization of Ethnographic Research Methods. Authors: Nicholas Baxter and Christopher Conner, Department of Sociology

9:15 – 9:30am  Multilateral Development Banks and Economic Growth. Author: Moritz P. Rissmann, Department of Political Science

9:30 – 9:45am  Love, Marriage, and Movies. Authors: Lauren Galloway and Erika Engstom, Department of Sociology

9:45 – 10:00am  Family Formation, Care and Financial Support and Gender Ideology of Fatherhood, from a Life Course Perspective. Author: Rachel Macfarlane, Department of Sociology
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session E: Room 218 (cont.)

10:00 – 10:30am  Break

10:30 – 10:45am  Victim Offender Reconciliation Program in China. Authors: Qingting Hu, Hong Lu and Lei Ma, Department of Criminal Justice

10:45 – 11:00am  Cultural Life of the Living Dead. Author: Denise Cook, Department of Sociology

11:00 – 11:15am  Economic Perceptions and Presidential Trust in the Caucasus. Author: Rafael Oganesyan, Department of Political Sciences

11:15 – 11:30am  A Candidate by Any Other Name: Investigating the Use of Nicknames as Heuristics. Authors: Kate Eugenis and Jonathan Bradley, Department of Political Sciences

Social Science Platform Session F: Room 219

8:30 – 8:45am  Do EU Structural Funds Have an Effect on French EP Elections? Author: Nathan Henceroth, Department of Political Science

8:45 – 9:00am  Housework and Employment: Trends Before, During, and After the 2007 U.S. Economic Recession. Author: Allison Sahl, Department of Sociology

9:15 – 9:30am  Big Hover or Big Brother? Public Attitudes on Using Drone Technology for Visual Surveillance Activities. Authors: Mari Sakiyama, Joel D. Lieberman and Terry Miethe, Department of Criminal Justice

9:15 – 9:30am  “Our Bedrooms Are Our Stage”: Selling Sex & Intimacy in a Nevada Brothel. Author: Christina Parreira, Department of Sociology

9:30 – 9:45am  Southeast Asia’s Environmental Policy: Perceptions and Realities. Author: Erika Masaki, Political Science

9:45 – 10:00am  Whose Community? Gentrification and Media Representation in Downtown Las Vegas. Author: Andrea Dassopoulos, Department of Sociology

10:00 – 10:30am  Break
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session F: Room 219 (cont.)

10:30 – 10:45am Probation and Parole Officer Attitudes toward Evidence-Based Practices: Application and Modification of the Evidence-Based Practices Attitudes Scale (EBPAS). Author: Breanna Boppre, Department of Criminal Justice

10:45 – 11:00am Producing Authenticity: Personal Style Bloggers, Branding, and Cultural Intermediaries. Author: Jennifer Whitmer, Department of Sociology

11:00 – 11:15am Expatriate Voting Rights in Latin America and the Caribbean: The Influence of Remittances, Globalization, and Partisan Control. Authors: Hafthor Erlingsson and John Tuman, Department of Political Science

11:15 – 11:30am Post-Cold War Era Ethnic Civil Wars. Author: Michael Trevathan, Department of Political Science

Education Platform Session E: Room 222: Room 218

8:30 – 8:45am Factors for Changing Preservice Teachers’ (PSTs) Knowledge, Attitudes, and Beliefs regarding Second Language Acquisition (SLA) and English Language Learners (ELLs). Authors: Elif Adibelli and Refika Turgut, Department of Teaching and Learning

8:45 – 9:00am Lessons Learned about Preschool Children’s Use of iPads. Author: Amy Adkins, Department of Teaching and Learning

9:00 – 9:15am Reducing Court-Related Stress through Court Education: Examining Child Witnesses, Parents and Attorneys. Author: Brittnie Watkins, Department of Educational Psychology and Higher Education

9:15 – 9:30am Teaching Positive Images of Disability in Native American Young Adult Literature. Author: Laura Decker, Department of Teaching and Learning

9:30 – 9:45am The Impact of Sociocultural Practices on International Graduate Students’ Teacher Identity Development. Authors: Alexandra Dema, Refika Turgut and Shaoan Zhang, Department of Teaching and Learning

9:45 – 10:00am Facilitating Inclusion of Diverse Students with EBD Through Cooperation Games. Authors: Samantha Riggleman and Teri Marx, Department of Educational and Clinical Studies
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session F: Room 219 (cont.)

10:15 – 10:30am Lessons Learned about Preschool Children's Use of iPads. Author: Lina DeVaul, Department of Teaching and Learning

10:30 – 10:45am Assessing Validity of Multiple Choice Questions in Measuring Fourth Graders Ability to Interpret Graphs about Motion and Temperature. Authors: Mehmet Dulger and Hasan Deniz, Department of Teaching and Learning

10:45 – 11:00am Community College Transfer in Southern Nevada: An Investigation of Policy and Outcomes. Author: Caitlin Saladino, Department of Educational Psychology & Higher Education

11:00 – 11:15am A Case Study of Social Justice Education in a General Methods Course. Author: Christina Santoyo, Shaoan Zhang and Danny Murphy, Department of Teaching and Learning

11:15 – 11:30am Black Male Education and Employment Opportunities. Author: Bob Walker, Department of Teaching and Learning

Science & Engineering Poster Session A: Ballroom

Posters 1 – 5: Judging at 8:45 – 10:00am

1. The Role of Insulin like Growth Factor 1 Receptor in Modulation Plasma Membrane Lipid Rafts through Affecting Acid Sphingomyelinase in Both Neural and Mesenchymal Stem Cells Development. Authors: Amro Abdalla and Hong Sun, Department of Chemistry

2. Sulfate Resistance of Nano Silica and Micro Silica Contained Mortars. Authors: Iani Batilov, Nader Ghafoori and Meysam Najimi, Department of Civil and Environmental Engineering and Construction


4. Performance Testing of Web-Based Data Visualization. Authors: Sungchul Lee, Ju-Yeon Jo and Yoohwan Kim, Department of Computer Science

5. Equation of State for Technetium from X-Ray Diffraction and First-Principle Calculations. Authors: Daniel S. Mast, Eunja Kim, Emily Siska, Frederic Poineau, Kenneth R. Czerwinski, Philippe F. Weck, Barbara Lavina, and Paul M. Forster, Department of Chemistry
2015 Graduate & Professional Student Research Forum at a Glance

Science & Engineering Poster Session A: Ballroom (cont.)

Posters 6 – 10: Judging at 10:15 – 11:30am

6. Multi-century Annual Streamflow Reconstruction using Tree Ring Chronology and Pacific Ocean Climate Information. Authors: Saria Bukhary, Ajay Kalra and Sajjad Ahmad Department of Civil and Environmental Engineering and Construction

7. Reconstructing Pacific-Atlantic Hydrologic Variability during the Medieval Climate Anomaly Using Paleorainfall δ18O Records from the Tropics. Author: Melisa Bishop, Department of Geoscience

8. Experimental Measurement of the Pressure Drop in the Flexible Ducting System. Authors: Samad Gharehdaghimollahajloo and Samir Moujaes, Department of Mechanical Engineering

9. Computed Tomography. Author: Ali Pour Yazdanpanah, Department Electrical and Computer of Engineering

10. Review on Ultra High Performance Concrete. Authors: Robabeh Jazaei and Nader Ghafoori, Department of Civil and Environmental Engineering

Science & Engineering Poster Session B: Ballroom

Posters 11 – 15: Judging at 8:45 – 10:00am


12. Novel Radionuclide Wasteforms Prepared Under Pressure. Author: Emily Siska, Department of Chemistry

13. Can Industrial Wastewater (Unilever, Ocean Spray and Biodiesel) Generated in Nevada be used as Carbon Source in Place of Conventional Carbon Sources to Treat Groundwater Contaminant-Perchlorate?" Author: Sichu Shrestha, Civil and Environmental Engineering and Construction

14. Climate Change Impact on Precipitation in the Chi-Mun basin, Thailand. Author: Nudthawud Homtong, Department of Geoscience

15. Disolution of Nontronite in low water activity Brines and Implications for the Habitability of Mars. Authors: Michael Steiner, Elisabeth Hausrath and Megan Elwood, Department of Geoscience
2015 Graduate & Professional Student Research Forum at a Glance

Science & Engineering Poster Session B: Ballroom (cont.)

10:00 – 10:30am Break

Posters 16 – 19: Judging at 10:30 – 11:30am

16. Chemical Characterization of Dust Deposition in an Arid Environment. Authors: Jason Sylva, Maria Cruz and Spencer M. Steinberg, Department of Chemistry

17. Quantifying Security Risk of Network Vulnerability by Risk Conditions. Author: Candace Suh-Lee, Department of Computer Science

18. Time-Scale Variations of Long-Term Changes in Streamflow for Continental USA. Author: Kazi Tamaddun, Department of Civil and Environmental Engineering and Construction

19. DTF Analysis of the Resistivity and Magnetization of Tc5I13. Authors: Jarod Wollfis, William Kerlin, Keith Lawler, Frederic Poinneau, Kenneth Czerwinski, Al Sattelberger and Paul Forster, Department of Chemistry

Science & Health Science Poster Session B: Ballroom

Posters 20 – 24: Judging at 8:45 – 10:00am

20. Review of IRB processes and metrics for IRB review at UNLV. Author: Cindy Lee-Tataseo, Department of Healthcare Administration and Policy

21. Inhibition of Paenibacillus larvae Spore Germination. Authors: Israel Alvarado, Michelle Elekonich and Ernesto Abel-Santos, School of Life Sciences

22. Effects of Dual-Tasking on Spatio-Temporal Gait Parameters in Children with Cerebral Palsy. Authors: John R. Harry, Robbin Hickman, Szu-Ping Lee, Brendan Morris and Janet Dufek, Department of Kinesiology & Nutrition Sciences

23. Toll-like Receptor 2 Activation Increases Expression of Platelet-Activating Factor Acetylhydrolase. Author: Jennifer Brown, School of Dental Medicine

24. Oral Microbial Burden of Periodontal Pathogens among Orthodontic Patients. Author: Kaylee Wonder, School of Dental Medicine

10:00 – 10:15am Break
2015 Graduate & Professional Student Research Forum at a Glance

Science and Health Science Poster Session C: Ballroom (cont.)

Posters 25 – 29: Judging at 10:15 – 11:30am

25. Relationship between Resistance Band Tension and Muscle Activity during Use of a Hip Exercise Device. Authors: Kristyne Bartel, Austin Coupé and Janet Dufek, Department of Kinesiology and Nutrition Sciences

26. Conservation Genetics for a Potentially Endangered Rodent Population. Authors: Caldonia Hartel, Sean Neiswenter and Brett Riddle School of Life Sciences

27. Oral Prevalence of Fusobacterium Nucleatum Reveals Age-Related Colon Cancer Risks. Author: Ecsile Chang, School of Dental Medicine

28. Analysis of Gender-Specific Differences in Oral Melatonin Receptor Expression. Author: Jessica Dick, School of Dental Medicine

29. Melatonin (MLT) Supplementation Reveals Differential Receptor Effects in Oral Carcinomas. Author: Michelle Farnoush, School of Dental Medicine

Science and Health Science Poster Session D: Ballroom

Posters 30 – 35: Judging at 8:30 – 10:00am

30. Effect of Outsole Degradation on Running Kinetics and Kinematics. Authors: Austin Coupé, Julia Freedman Silvernail and Janet Dufek. Department of Kinesiology and Nutrition Sciences

31. Can Desert Mosses Hide from Climate Change? The Buffering Capacity of Moss Microclimates. Authors: Theresa Clark, Dale Devitt, Lloyd Stark and Alexander Russell, School of Life Sciences

32. Interactive Effects of 1,25-Dihydroxyvitamin D3 and Soy Protein Extract (SPE) on Oral Cancer Proliferation In Vitro is Mediated, in Part, by Expression of the Vitamin D Receptor (VDR). Author: Saro Oknaian, School of Dental Medicine

33. Lower Education and Hispanic Race Influence Quality of Care of Breast Cancer Patients and Survivors. Authors: Sanae El Ibrahimi and Paulo Pinheiro, School of Public Health

34. The Effects of Locomotion-Induced Shock Loading on Tibiofemoral Bone Stress Injury. Authors: Alexa Standerfer, Karen Daun and Suzenna Ngo, Department of Physical Therapy

35. Exosome Analysis: Isolation of Oral Squamous Cell Carcinoma MicroRNA in Culture. Author: Brady Petersen, School of Dental Medicine
2015 Graduate & Professional Student Research Forum at a Glance

Science and Health Science Poster Session D: Ballroom (cont.)

10:00 – 10:15am Break

Posters 36 – 40: Judging at 10:15 – 11:30am

36. An Evaluation of Select Physical Activity Exercise Classes (PEX) on Markers of Bone Mineral Density. Authors: Tori Stone, Chase LaComb, James Navalta, Jack Young, Richard Tandy, Laura Kruskall and Patricia Alpert, Department of Kinesiology and Nutrition Sciences

37. The Role of Mfd in Oxidative Damage Repair. Authors: Kate Porter, Amanda Prisbrey, Carmen Vallin and Eduardo A. Robleto, School of Life Sciences

38. Leukocyte Response and Recovery to Exercise in HCMV+ Individuals. Author: Jared Wilson, Department of Kinesiology and Nutrition Sciences

39. Role of Race/Ethnicity and Melatonin Expression among Healthy Adults. Author: Kory Grahl, School of Dental Medicine

40. Correlation between Folate Supplementation and the Proliferation and Survival of Oral Squamous Cell Carcinomas. Author: John Silvaroli, School of Dental Medicine

Social Science and Law Poster Session A: Ballroom

Posters 41 – 44: Judging at 9:00 – 10:00am

41. The Devil Made Me Do It: The Effects of Focus of Concern and Level of Authority on Perceptions of Domination in Death Penalty Cases. Authors: Alexa Bejinariu, Suparna Malempati and Joel D. Lieberman, Department of Criminal Justice

42. Measures of Acculturation and their Association to Dietary Behaviors among Hispanic Adults in the United States. Authors: Erik López, Takashi Yamashita and Christie Batson, Department of Sociology

43. Attitudes and Perceptions towards Sex Tourism in Las Vegas. Author: Carolyn Willis, Department of Criminal Justice

44. “Bonded Tenancy”- International Human Rights Framework. Authors: Stacy Newman, Lindsay Lindell and Katerina Chadliev, School of Law
2015 Graduate & Professional Student Research Forum at a Glance

Social Science and Law Poster Session A: Ballroom (cont.)

Posters 45 – 48: Judging at 10:30 – 11:30am

45. Understanding the Civil Protection Order Process: The Relationship between Self-Help, the Court System, and Experiential Knowledge. Authors: Dory Mizrachi, Emily I. Troshynski, Elizabeth L. MacDowell, and Amy Magnus, School of Environmental Studies and Public Affairs

46. Expanding Educational Opportunity and Equity for English Learners: The Role of School Boards in the U.S. Mountain West. Author: Carrie Sampson, School of Environmental Studies and Public Affairs

47. Putting the Microscope on Crime Labs: The Effects of Evidence Complexity and Laboratory Type on Jurors’ Perceptions of Forensic Evidence. Authors: Miliaikeala S. J. Heen and Joel D. Lieberman, School of Environmental Studies and Public Affairs

48. Policing Political Protest Events: Risks and Challenges. Author: Logan Kennedy, Department of Criminal Justice

Social Science Poster Session B: Ballroom

Posters 49 – 53: Judging at 9:00 – 10:15am

49. Effect of Engagement Strategy on Client’s Disclosure. Authors: Yulia Gavrilova, Ashley Dowd, Travis Loughran, Ande Pascua, Regina Mitchell and Brad Donohue, Department of Psychology

50. A GIS-Based Analysis of the Lithic Core Find Locations at Krittou Marottou Ais Giorkis. Author: Levi Keach, Department of Anthropology

51. GABAB Ligand Dose-Dependent Changes in Spatial Learning and Hippocampal GABAergic and Plasticity Proteins. Authors: Chelcie F. Heaney, Monica M. Bolton, Andrew S. Murthiash, Michael A. Langhardt, Jefferson W. Kinney, Department of Psychology

52. The Art of Feasting: Style and Identity in a Ritual Area at the Harris Site. Author: Ashley Lauzon, Department of Anthropology

53. The Dynamics of Infants’ Interest in Female and Male Faces: A Recurrence Quantification Analysis. Authors: Andrea Kayl and Jennifer L. Rennels, Department of Psychology

10:00 – 10:30am Break
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Poster Session B: Ballroom (cont.)

Posters 54 – 57: Judging at 10:30 – 11:30am

54. Relative Contribution of Caregivers’ Marijuana and Hard Drug Use in Predicting Child Maltreatment Potential While Considering Social Desirability. Authors: Kimberly Schubert, Bradley Donohue, Graig M. Chow, Anali Torres, Quincy J. Palou and Kenza B. El Ansari, Department of Psychology

55. It's all about the Timing: Investigating the Self-Report of Math Anxiety. Authors: Amy J. McAuley, Alex M. Moore, Mark H. Ashcraft, Department of Psychology

56. Steroid Hormone Change in Response to Competition in Juvenile Boys. Authors: Timothy McHale, Peter Gray and David Zava, Department of Anthropology

57. Cognitive Depletion: Exploring the Consequences of Having Too Many Options. Author: Laura Werner, Department of Psychology

Social Science Poster Session C: Ballroom

Posters 58 – 61: Judging at 9:00 – 10:00am

58. The Mental Organization of Permanent and Situational Character Attributes. Authors: Kathleen Larson and David Copeland, Department of Psychology

59. The Effects of Dopamine Antagonism on Reward Learning in Schizophrenia. Authors: Bern Lee, Sally J. Vogel, S. J. Sisk, J.K. Yao, D.P. van Kammen and Daniel N. Allen, Department of Psychology

60. The Elite’s War: Violence and Social Coercion at Chaco Canyon and Casas Grandes (AD 900-1400). Author: Caryn Tegtmeyer, Department of Anthropology

61. Effects of Speech Rate Context on Speech Comprehension. Author: David Weintraub and Joel Snyder, Department of Psychology

10:00 – 10:30am Break

Posters 62 – 65: Judging at 10:30 – 11:30am

62. Improvement in Executive Function Following Traumatic Brain Injury (TBI) in Children. Authors: Abigail Mayfield, Anna Reyes, Joan Mayfield and Daniel Allen, Department of Psychology

63. Bioarchaeology of the Arabian Bronze Age: Humeral Enthesal Changes and Burial Patterns at Tell Abraq. Authors: Mark Toussaint and Debra Martin, Department of Anthropology
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Poster Session C: Ballroom (cont.)

64. The Effects of Gender and Cost on Suspicion: An Evolutionary Perspective. Authors: Mandy Walsh and Murray Millar, Department of Psychology

65. The Effect of Perceived Attractiveness on Endorsement of the Just World Hypothesis. Authors: R. Shane Westfall and Murray Millar, Department of Psychology

Education Poster Session A: Ballroom

Posters 66 – 73: Judging at 8:30 – 10:30am

66. Evidence-Based Practices: School District Considerations for the Professional Development of General and Special Educators. Author: Pamela Juniel, Educational & Clinical Studies

67. Teacher Candidate Technology Integration: For Student Learning or Instruction? Authors: Cynthia Clark and Shaoan Zhang, Department of Teaching & Learning

68. I See You: Comparing the Effect of Asynchronous and Synchronous Video versus Text Based Communication in an Online Teacher Education Course. Authors: Rachel Part, Joe N. Crank, Rebecca Nathanson and Brittnie Watkins, Department of Educational Psychology and Higher Education

69. A Bayesian Scale to Measure the Big-5 Personality Traits. Authors: Jennifer S. Guttman, W. Paul Jones, Hannah Berry, Isabelle Sanchez, Scott A. Loe and Tara Raines, Department of Educational Psychology & Higher Learning

70. Making Math More Relevant Through Integrated STEM. Author: Cathrine Maiorca, Department of Teaching & Learning

71. Two Simulation Tools to Promote Learning in Science. Authors: Pamela A. Maher, Janelle M. Bailey, P. G. Schrader and James Ormord, Department of Teaching & Learning

72. Design, Development, and Delivery of the Nevada GEAR UP STEM Summer Institute. Authors: Schetema Nealy, Kristoffer Carroll, Heather Skaza, Erica Marti, Eshani Gandhi, Mehmet Dulger, Daniel Gerrity, Travis Olson, PG Schrader and MaryKay Orgill, Department of Chemistry

73. Teaching English as a Second Language: Not just a want, a Nevada NEEDs! Author: Mary T. Simmons, Department of Department of Education & Clinical Studies

10:30 – 10:45am Break
2015 Graduate & Professional Student Research Forum at Glance

Education Poster Session A: Ballroom (cont.)

Posters 74 – 76: Judging at 10:45 – 11:30am

74. The Earlier the Better: Teacher Beliefs About Design, Engineering, and Technology Instruction. Authors: Abeera P. Rehmat, Marissa C. Owens and Janelle M. Bailey, Department of Teaching & Learning

75. Does Prior Knowledge Modify the Testing Effect? Authors: Megan Cogliano and CarolAnne Kardash, Department of Educational Psychology & Higher Education

76. Designing, Analyzing, Modifying, and Supplementing an Inclusive English Language Arts Curriculum for Gender-and-Culture-Diverse Student Populations. Author: Zachary Sanderson, Department of Teaching & Learning

Fine Arts Poster Session A: Ballroom

Posters 77 – 81: Judging at 8:45 – 10:00am

77. Master's of Architecture concentration in Educational Facilities. Authors: Katherine Slaughter, Jesus Diaz and Melissa Avelar, School of Architecture

78. Infinite reflection. Author: Audrey Barcio, Department of Art

79. Transformations of Flesh in Oil Paint. Author: Wendy Chambers, Department of Art

80. Tower-on-base Alternatives Driven by Urban Theory Help to Improve Community Integration. Author: Kyle Fischer, School of Architecture

81. Grounds for Abstraction: Large Scale Abstractions on Development. Author: Maureen Halligan, Department of Art

10:00 – 10:30am Break

Posters 82 – 85: Judging at 10:30 – 11:30am

82. Expressing and Celebrating Queer Culture through Art. Author: Elizabeth Johnson, Department of Art

83. Emphasizing Entertainment and Esthetic Aspects of Edible Rooftop Gardens Produces Development Opportunities in Sync with Las Vegas Resort Objectives: Re-envisioning the Sands Expo Roofscape. Author: Alfred Pulido, School of Architecture
2015 Graduate & Professional Student Research Forum at a Glance

Fine Arts Poster Session A: Ballroom (cont.)

84. Decorative Imagery that Shapes our Visual Landscape. Author: Lisa Rock, Department of Art

85. Instax Body Project. Author: Shelbi Schroeder, Department of Art
Graduate & Professional Student Research Forum
Science
Platform Session A
UNLV Student Union Room 205

9:00 – 9:15am   Eric Chameroy, School of Life Sciences
9:15 – 9:30am   Alicia Crespin, School of Life Sciences
9:30 – 9:45am   Ata Ur Rahman Mohammed Abdul, Department of Chemistry
9:45 – 10:00am  Alexis Crisp, School of Life Sciences

10:00 – 10:30am  Break

10:30 – 10:45am  Joshua Greenwood, School of Life Sciences
10:45 – 11:00am  Jenni Kumanchik, Department of Kinesiology and Nutrition Sciences
11:00 – 11:15am  Anthony Harrington, School of Life Sciences
11:15 – 11:30am  Moinak Bhaduri, Department of Mathematical Sciences
Facilitation and Competition within Joshua Tree (*Yucca brevifolia*) - Spiny hopsage (*Grayia spinosa*) Nurse-Plant Associations
Eric Chameroy, School of Life Sciences

In arid environments, recruitment and survival of young plants of many species, including Joshua tree (*Yucca brevifolia*), are facilitated by living in close association with larger, more-established plants also referred to as “nurse plants”. I conducted a field experiment to measure facilitation and competition in nurse-plant associations involving Joshua tree and spiny hopsage (*Grayia spinosa*), a dominant woody shrub species in two study areas within Dry Lake Valley, Lincoln County, Nevada, by measuring relative changes in resource usage when one of the species is removed from nurse pairs. The remaining individuals were then compared to control pairs in which both individuals were left intact.

Results of the removal experiment showed overall no significant differences in soil and leaf nutrients between the groups in response to plant removals. There was a difference in leaf water status in spiny hopsage. However, this difference was not consistent across the two study areas. These results suggest that any possible responses may have been masked by below ground biological activity or by differing physical and chemical characteristics across the study areas.

Results of a herbivory survey I conducted in addition to the field experiment concluded that Joshua trees growing under shrub crowns, away from the crown edge, experienced less herbivore damage than those growing near the crown edge.

Although this study suggests that Joshua tree may benefit from these associations through reduced herbivory, interactions within these associations may vary depending upon the biotic and physical characteristics of the environment.
Analyzing Caterpillar-Ant Interactions in Three Butterfly Species of the Mojave Desert: Are Caterpillars Buying Protection or Appeasing Potential Predators?
Alicia Crespin, School of Life Sciences

Butterflies are a diverse and important group of pollinators whose abundance is chiefly determined by growth and survival of caterpillars. In 2,700 species of Lyceanid butterflies, caterpillar development is influenced by ants which feed on a nutrient-rich substance (nectar) produced by the caterpillars. In return for this offering, ants who accept the nectar are presumed to protect caterpillars from predators and parasites. Two prevailing hypotheses address the nature and origin of these interactions. The “appeasement” hypothesis posits that Lyceanid caterpillars produce nectar to avoid predation by ants. This relationship would be costly to caterpillars but shield them from some potential ant predators. The “mutualism” hypothesis proposes that caterpillar-ant interactions arose due to their mutually beneficial nature. Here, the cost of nectar production is outweighed by the benefit of ant protection from other insect predators and parasites. Though many studies have characterized these interactions, few have tested predictions that distinguish appeasement from mutualism or the influence of host plant and ant nest distributions on the interaction. In addition, no studies have addressed the butterfly species of Southern Nevada. This study, performed in the Spring and Summer of 2015, will focus on elucidating the importance of ants for caterpillar development in three species of butterflies found in the Mojave Desert.
Glycogen Synthase Kinase 3 Beta (GSK-3β) is a multifunctional serine/threonine kinase which plays a major role in cell proliferation, apoptosis, glycogen metabolism, Wnt and hedgehog signaling. The deregulation of pathways involving GSK-3β has been directly linked to major diseases like type II diabetes, Alzheimer’s disease, bipolar disorder and various cancers. There is a great demand for efficient, simple and specific inhibitors of GSK-3β. Lithium, zinc and tungsten are commonly used small molecule inhibitors of GSK-3β. Lithium is the most well characterized specific small molecule inhibitor of GSK-3β with an IC₅₀ of 2 mM but we have established that beryllium is a more potent (1000 times) GSK-3β inhibitor compared to lithium. Our recent studies indicate that beryllium may be a more selective GSK-3β inhibitor in cellular context.

Therapeutic targeting of GSK-3β enzyme presents a peculiar problem wherein the normal functioning of GSK-3β has to be unaffected in important pathways like the Wnt signaling pathway, so as to avoid any serious side effects. Conversely negative regulation of GSK-3β activity is required in diseases like type II diabetes and Alzheimer’s disease. Our new results suggest that beryllium could be the key towards the development of a cell type or pathway specific and effective GSK-3β inhibitor. Beryllium while inhibiting GSK-3β enzyme seems to be selectively inhibiting one pathway while showing no effect on the other GSK-3β pathways.
A Tubular 3D Force Analysis of Kangaroo Rat Burrowing
Alexis Crisp, School of Life Sciences

The study of burrowing biomechanics has been largely restricted to kinematics and one-dimensional force analyses in unnatural, open-air environments. We introduce the Tunnel-tube 2.0, a reworking of our previous force-sensitive tunnel-tube. This tube is composed of two custom designed, 3D-printed Acrylonitrile butadiene styrene (ABS) plastic tubes placed in series. One half of the tube consists of a rubber tube that is sealed inside the plastic itself, filled with radiolucent soil, and marked periodically with ball bearings. These ball bearings change position as the animal presses on soil inside the rubber tube, allowing us to track the direction of force production. A pressure sensor fixed between the rubber and ABS tube (the inter-tube space) measures the magnitude of burrowing force. Both halves are mounted on individual ATI nano-17 six-axis load cells that measure the net force generated in each half, allowing us to isolate the forelimb and hindlimb forces. The pressure sensor data are calibrated against the load cell data and these calibrations are applied to burrowing activity of kangaroo rats (*Dipodomys merriami*). Kangaroo rats have hindlimbs that are highly specialized for bipedal hopping, but have retained burrowing capabilities with the forelimbs -- making this a sufficiently “decoupled” system on which to validate our design. Here, we elucidate some mechanisms of burrowing in kangaroo rats.

Presentation: Society of Integrative and Comparative Biology, January 7, 2015
A Life Spent Dry: Interactive Effects of Age, Sex, Genotype and Rate of Drying upon Survival in the Desert Moss *Bryum argenteum*
Joshua Greenwood, School of Life Sciences

Desert adapted mosses are among the hardiest organisms on earth, however the methods by which this is achieved and the factors that influence survival have eluded researchers for decades. Over the previous three years our lab has established a paradigm shifting concept in our field by the discovery of an inducible desiccation tolerance (DT) strategy within bryophytes. This more nuanced understanding is in opposition to the previous dominant concept, which described all mosses as either DT or not DT with no organisms in between. With this study we set out to expand upon our previous work by uncovering which factors had the greatest influence upon DT and post desiccation recovery. In this study we are focusing upon DT capacity using the cosmopolitan moss *Bryum argenteum*. *Bryum argenteum* makes an ideal study system due to its high capacity for DT, multiple distinct life history stages, worldwide distribution, habitat diversity and dioecious nature. Interaction as well as single factor effects were examined to determine the relative influence of genotype, sex, life history phase and rate of drying had upon recovery after a desiccation event. Through an exhaustive multiplexed experimental design we have produced a data set capable of determining the relative influence of all the examined factors. Results from this study have shown a surprising number of factors play a role in DT further illustrating the complex nature of the DT response.

Presentation: American Bryological and Lichenological Society, July 29, 2014
Anecdotal evidence suggests that the use of dynamic compression can enhance athlete performance when used prior to physical activity. However, limited quantitative data exists to explain this physiological phenomenon. Data exists to support the concept that dynamic compression aids in venous return, thus measuring changes in heart rate variability and heart rate during physical activity may provide insight into the effects of dynamic compression on athlete performance. Therefore, this study sought to assess the acute effects of dynamic compression on heart rate variability (HRV) and peak heart rate (PHR) while running. A single-subject experimental design was used with two conditions: control (without dynamic compression) and treatment (with dynamic compression). Each condition involved ten separate sessions/trials with a dynamic compression protocol (control = 0 mmHg, treatment = 55 mmHg) for 25 min followed by a running protocol on a motorized treadmill at a comfortable pace and 5% incline for one mile. A heart rate monitor with telemetry strap and wristwatch was used to measure HRV and PHR. Data were reduced using time-domain and frequency-domain analyses for HRV. Mean values for HRV and PHR during the compression and running protocols for each condition were compared using two model statistic paired samples t-tests.
Characterization of Novel Biosurfactant/Bioemulsifier Producing Bacteria Isolated from Hydraulic Fracturing Waters  
Anthony Harrington, School of Life Sciences

Biosurfactants (BS) and bioemulsifiers (BE) are compounds synthesized by living organisms that can reduce the surface tension at the liquid-liquid, gas-liquid, or solid-liquid interface. This reduction can lead to the formation of an emulsion between immiscible materials usually between two immiscible liquids. BS reduces the surface tension of a liquid that can lead to formation of an emulsion while BE do not necessarily lower the surface tension of a liquid but instead form or stabilize emulsions. Many BS and BE compounds produced by bacteria have been identified and some have been commercialized because these compounds exhibit low toxicity and better biodegradability compared to synthetic surfactants and emulsifiers. Microorganisms that produce BS or BE compounds have been isolated from environments that are in the presence of hydrocarbons or contaminated by hydrocarbons. This study has isolated 40 unique bacteria from various hydraulic fracturing water samples and will determine if any of these bacteria are capable of producing BS or BE compounds. The goal of this study will be to expand on this topic with the hopes of finding microorganisms that produce novel BS or BE and to determine the breadth of microbial diversity capable of synthesizing these compounds.
On a Statistical Investigation of the Dependence Structure Between Two Related Time Series: Application to Hurricane Frequency Modeling
Moinak Bhaduri and Chih-Hsiang Ho, Department of Mathematical Sciences

Simultaneous occurrence of two or more time-dependent sequence of events is frequently encountered in science and engineering and most often, researchers are more interested in the mutual interplay of the two series, rather than the series themselves. The present work endeavors to propose a new mathematical tool termed Empirical Recurrence Rates Ratio (ERRR) and a novel methodology to detect a suspected dependency pattern in a way that appeals to intuition, without sacrificing scientific rigor and we apply our method to real data sets on strong, weak and tropical West Atlantic hurricanes since 1923. The investigation is timely, since as we near the end of the current decade, strong hurricanes and tropical storms originating from the Atlantic ocean continue to pose a relentless threat, especially to the east coast of the United States and researchers believe that in the absence of a sophisticated forecasting tool and a better understanding of the cyclone dynamics, the years to come shall witness an unprecedented loss of human lives and property. Forecasting techniques are then applied to understand whether the observed dependency pattern will continue in the near future so that precautionary measures can be promptly undertaken to cushion the effect of an unforeseen calamity. Careful investigation of ERRR often unearths assignable causes: for instance, global warming in the present case. A simple construction of the ERRR function and its advantages over existing techniques, coupled with the fact that similar series abound in almost every aspect of human endeavor, emphasize the unquestionable versatility of our method.

Presentations:
I presented a similar work, on a different data set at the IISA Conference on Research Innovation in Statistics for Health, Education, Technology and Society during 11th July - 13th July, 2014 at Riverside, California, USA
A more mathematically rigorous version of this work will be presented at the 2015 Joint Statistical Meeting during 8th August - 13th August at Seattle, Washington, USA
Graduate & Professional Student Research Forum

Science
Platform Session B
UNLV Student Union Room 207

9:00 – 9:15am  Michael Picker, School of Life Sciences
9:15 – 9:30am  Amanda Prisbrey, School of Life Sciences
9:30 – 9:45am  Surbhi Sharma, School of Life Sciences
9:45 – 10:00am Andrew Nordin, Department of Kinesiology and Nutrition Sciences

10:00 – 10:30am  Break

10:30 – 10:45am  Carmen Vallin, School of Life Sciences
10:45 – 11:00am  Kenneth Watanabe, School of Life Sciences
11:00 – 11:15am  Cindy Kha, School of Life Sciences
11:15 – 11:30am  Donald McGinn, Department of Mathematical Sciences
Shigella flexneri is a bacterial pathogen that causes bloody diarrhea in humans. This bacterium contains a large DNA molecule, the virulence plasmid, which is home to many genes that are responsible for the disease-causing ability of this pathogen. These genes are turned on, or upregulated, by VirB, a DNA binding protein that is essential for the virulence of Shigella, but so far, the mechanistic details of this upregulation remain poorly understood. My overall goal is to understand these details. Based on similarity to the closely related protein ParB, I hypothesize that VirB can facilitate changes in DNA supercoiling (i.e. DNA twisting). Here, I show that isolation of a plasmid containing our VirB-dependent gene reporter system in the presence of VirB displays a difference in its supercoiled state compared to the same plasmid isolated in the absence of VirB. This observation does not depend on the presence of other plasmid features or VirB-induced transcription, but instead, depends on the presence of a specific DNA sequence required for VirB-dependent upregulation. Furthermore, the VirB protein alone is unable to facilitate changes in DNA supercoiling, suggesting the involvement of another factor. Future experiments will dissect the role that VirB-dependent changes in supercoiling play in the upregulation of Shigella virulence genes and identify any additional factors involved in the elusive mechanism of VirB-dependent regulation in Shigella. Thus, the outcome of these and future experiments will enhance our understanding of Shigella virulence, and provides an avenue for vaccine development for lasting protection against Shigella infections.

Presentations: ASM Regional Branch Meeting April 5, 2014 and the Wind River Conference on Prokaryotic Biology June 4 - 8, 2014
Development of Competence Leads to Mutagenesis in Stressed *Bacillus subtilis* Cells
Amanda A. Prisbrey, Carmen Vallin, John Creech, Holly A. Martin, and Eduardo A. Robleto, School of Life Sciences

Mutagenesis is central to the evolutionary process. We currently view evolution as a gradual process affecting all cells within a population. However, I aim to study an underappreciated part of the evolutionary process, mutations generated during stationary phase within a subpopulation. Stationary phase cultures of *Bacillus subtilis* develop subpopulations that exhibit different survival strategies. One of these subpopulations, known as competence, develops the ability to uptake exogenous DNA. During competence, new alleles can be acquired and recombine into the hosts genome leading to genetic diversity. Published results from my research group have shown that i) defects in genetic factors that control competence (ComK and ComA) result in decreases in mutagenesis in non-growing cells; and ii) the observed decrease is independent of recombination. We speculate that some other mechanism, activated during the K-state, regulated by the transcriptional activator ComK, in which more than just competence genes are activated, is responsible for most of the mutations seen during stationary phase.

My project seeks to bring together these separate observations into a coherent understanding of how competence or the K-state leads to increases in mutagenesis. Here we test the hypothesis that the population of cells that develops competence experiences increased levels of mutagenesis during stationary phase.

Presentation: Wind River Conference on Prokaryotic Biology, Estes Park, Colorado, June 4-8 2014
C-Terminome Web-Application: A Tool to Mine the C-Termini of Human Proteome
Surbhi Sharma, School of Life Sciences

Protein-protein interactions are important in regulating various cellular processes. These interactions are mediated through short stretches of amino acid residues present in proteins called as minimotifs. Minimotifs are vary in length from 3-15 amino acids, and are known to have a function in at least one protein. Although minimotifs can be present anywhere in a protein some minimotifs are functional when present at the very end of the proteins called as C-termini region. These functions include post-translational modifications, trafficking, and binding. Based on the computational analysis of the Minimotif Miner3.0 database (database of ~600,000 validated minimotifs), we identified 1000’s of minimotifs present at the C-termini region of the proteins. Based on this observation, we hypothesized that many other proteins also utilize their C-termini functionally. We generated a list of novel C-termini minimotifs for the entire human proteome. We, then, calculated the enrichment scores for each novel C-termini minimotif indicating the likelihood of that minimotif to be a true minimotif. All the information on validated, and novel C-termini minimotifs has been consolidated into a user friendly web-application, C-terminome.

Web link: http://cterminome.bio-toolkit.com/cTerm/
Minimalist vs. Cushioned Running Shoes: Impact Loads Vary with Foot-Strike Pattern
Andrew D. Nordin and Janet S. Dufek, Department of Kinesiology & Nutrition Sciences

The influence of footwear on running injuries receives considerable interest in scientific literature. The re-introduction of minimalist footwear, ostensibly mimicking barefoot running, is often promoted as a means of reducing running injuries, along with transitions in foot-strike pattern, or the manner in which the foot contacts the ground. Interactions among shoe construction, foot-strike patterns, and injury rates continue to be explored due to financial motivations in producing novel footwear and unchanging injury rates.

The objective of this research was to investigate the influence of running mechanics, shoe construction, and loading features on potential injury mechanisms in running. Twenty participants were analyzed during fourteen running trials in six separate footwear and foot-strike combinations. Each participant wore standard cushioned and minimalist running shoes during forefoot, mid-foot, and rear-foot running conditions, indicating the first point of foot contact with the ground. A novel multivariate statistical approach was used in quantifying observed loading characteristics. Comparisons were evaluated using three-dimensional loading rate-time profiles for each footwear and foot-strike combination. Two contrasting loading patterns were observed, exposing impact characteristics that varied with footwear and foot-strike. Greater loads were observed during minimalist rear-foot and cushioned forefoot running, while impact attenuation occurred in cushioned rear-foot and minimalist forefoot running. Mid-foot running presented mid-range loading characteristics in each footwear condition. The selection of appropriate footwear therefore appears to be dependent upon preferred individual foot-strike patterns, with alterations in footwear and foot-stripe requiring time for adaptation in response to varied loading patterns.

Presentation: 2015 Meeting of the American Society of Biomechanics
Non-B DNA Promotes Genetic Diversity in *B. subtilis* Stationary Phase Cells
Carmen Vallin, Amanda A. Prisbrey and Eduardo A. Robleto School of 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 the Gram positive bacterium *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 prone DNA to damage and, subsequently through low-fidelity repair, to accumulate mutations.

Data thus far is showing a role for a particular type of non-B DNA structure, Stem Loop Structures (SLS), in mutagenesis. When a stable construct was compared to a construct disrupted in its ability to form the SLS, mutation levels were affected. Given that all organisms have sequences with potential for form non-B DNA structures and that these structures have also been linked to genetic instability and disease, it is important to understand their role in mutagenesis.

Presentation: 58th Annual Wind River Conference on Prokaryotic Biology
Tiling Assembly: A New Tool for Reference Annotation Independent Transcript Assembly and Novel Gene Identification by RNA-Sequencing

Kenneth Watanabe, School of Life Sciences

Annotation of the rice (*Oryza sativa*) genome has evolved significantly since the release of the draft sequence, but it is far from being complete. Several published transcript assembly programs were tested on RNA-sequencing data to determine their effectiveness in identifying novel genes so that the rice genome annotation can be improved. Cufflinks, the most prevalent RNA-sequencing data analysis software, did not identify all the genes suggested by the RNA-sequencing data. To identify additional genes, a heuristic ab initio transcript assembly algorithm, Tiling Assembly, was developed to identify genes based on short read and junction alignment. Tiling Assembly was compared with Cufflinks to evaluate its gene finding capabilities. In addition, a pipeline was developed to eliminate false-positive gene identification due to noise or repetitive regions in the genome. By combining Tiling Assembly and Cufflinks, 767 unannotated genes were identified in the rice genome, demonstrating that Tiling Assembly in combination with Cufflinks proves to be highly efficient for novel gene identification. Benchmark analysis was performed to determine the minimum expression thresholds necessary for accurate gene identification. Genes identified by Tiling Assembly were compared to their corresponding full-length cDNA to determine the accuracy of their identification and whether RNA-sequencing data can be used to accurately determine transcription start and termination sites. In addition, we applied our pipeline to a number of model organisms and identified numerous unannotated genes.

Presentation: Annual Society of Plant Biologists annual International Conference, Portland, Oregon. July 2014
Frog tadpoles have the ability to fully regenerate its tail after amputation. Their regenerative abilities include rapid regrowth of complex tissues such as nerves, blood vessels, and muscles. In contrast, humans are unable to regrow limbs or other organs after acute loss. Thus understanding the process of natural regeneration may give us insights into why humans lack this ability. To pursue this goal, we use the African clawed frog, *Xenopus laevis*, as our model organism to identify the mechanisms that controls tissue regeneration. *Xenopus* is a popular model for biology studies and tadpoles can fully regrow a new tail within a week. Their genes can also be easily manipulated. Published studies indicate that insulin, a hormone needed for glucose metabolism and cell growth, is required for normal regeneration. Loss of insulin results in defective regeneration. However, the role of insulin in regeneration is unclear. Thus, we hypothesize that insulin activity is important for promoting tissue regeneration. We are studying how changing insulin activity alters regenerative abilities in tadpoles. Our regeneration research will greatly further understanding of why animals recover from tissue injury and damage differently. Furthermore, it may lead to potential new therapeutic methods for regenerative medicine.
My research is in analytic number theory, and my research focused on the Markoff equation. The Markoff equation is \( x^2 + y^2 + z^2 = 3xyz \), and all of the positive integer solutions of this equation occur on one tree generated from \((1, 1, 1)\), which is called the Markoff tree. In this talk, we consider trees of solutions to equations of the form \( x^2 + y^2 + z^2 = xyz + A \). We say a tree of solutions satisfies the unicity condition if the maximum element of an ordered triple in the tree uniquely determines the other two. The unicity conjecture says that the Markoff tree satisfies the unicity condition. In this talk, we show that there exists a sequence of real numbers \( \{c_n\} \) such that that the tree generated from \((1, c_n, c_n)\) satisfies the unicity condition for all \( n \), and that these trees converge to the Markoff tree. We accomplish this by recasting solutions as linear combinations of Chebyshev polynomials, and showing that these polynomials are distinct. Then we evaluate these polynomials at certain values and use a countability argument.
### Graduate & Professional Student Research Forum

**Science and Engineering**  
**Platform Session C**  
**UNLV Student Union Room 208A**

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<tr>
<th>Time</th>
<th>Presenter</th>
<th>Department</th>
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<tr>
<td>8:45 – 9:00am</td>
<td>Erica Marti</td>
<td>Department of Civil and Environmental Engineering and Construction</td>
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<tr>
<td>9:00 – 9:15am</td>
<td>Wyatt Bain</td>
<td>Department of Geoscience</td>
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<tr>
<td>9:15 – 9:30am</td>
<td>Jessica Hartman</td>
<td>Department of Mechanical Engineering</td>
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<td>9:30 – 9:45am</td>
<td>Seth Gainey</td>
<td>Department of Geoscience</td>
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<tr>
<td>9:45 – 10:00am</td>
<td>Chao Chen</td>
<td>Department of Civil and Environmental Engineering and Construction</td>
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<td>10:00 – 10:30am <strong>Break</strong></td>
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<td>10:30 – 10:45am</td>
<td>Sara Gedo</td>
<td>Department of Geoscience</td>
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<td>10:45 – 11:00am</td>
<td>Kishor Shrestha</td>
<td>Department of Civil and Environmental Engineering and Construction</td>
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<td>11:00 – 11:15am</td>
<td>Jonathan Baker</td>
<td>Department of Geoscience</td>
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<td>11:15 – 11:30am</td>
<td>Sogol Pirbastami</td>
<td>Department of Mechanical Engineering</td>
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**A Hazardous Ozone Disinfection Byproduct: NDMA Formation and Implications for Water Reuse**

Erica Marti, Jacimaria Batista and Eric Dickenson, Department of Civil and Environmental Engineering and Construction

N-nitrosodimethylamine (NDMA) is a probable human carcinogen and may be a regulated drinking water contaminant in the future. Although there are some industrial sources, the main process for this contaminant to enter the water is as a disinfection byproduct. Substantial research has focused on NDMA formation with chloramination, but recent studies show direct formation during ozonation of surface water and treated wastewater. NDMA formation may be a significant barrier to ozonation in water reuse applications, particularly for potable reuse. This research focused on identifying a set of model compounds, or precursors, which forms NDMA with high yields. Several factors affecting formation were investigated, including: bromide presence, ozone dose, and addition of hydrogen peroxide. Comparisons in NDMA formation were made between: formation associated with molecular ozone vs hydroxyl radical, formation in ultrapure water vs wastewater, and formation due to chloramination vs ozonation. Results show that bromide concentration was significant for some model compounds, but did not enhance NDMA formation for the other precursors. This suggests that different pathways may be involved in NDMA formation. Molecular ozone is the dominant oxidant leading to NDMA formation for the model compounds and the presence of hydroxyl radical scavengers could lead to increased NDMA concentrations. Formation due to chloramination was minimal compared to formation due to ozonation. Pre-chlorination was investigated as a mitigation strategy. Initial results suggest that it may be highly effective at reducing NDMA formation due to ozonation or chloramination. However, trade-offs in disinfection byproducts must be evaluated.

Presentation: Water Environment Federation Technology Exhibition and Conference (WEFTEC), September 2014
Established Models of Hydrothermal Fluid Distribution around Porphyry Deposits: The Application of Fluid Inclusion Research to Porphyry Exploration
Wyatt M. Bain, Jean S. Cline, Tim M. Marsh, Department of Geoscience

Porphyry deposits are the source of 60% of the world’s Cu resources and a main source of Mo, W, Sn, Ag, and Au. The Kabba prospect in NW Arizona has many of the hallmarks of a major porphyry deposit but to date no exploration program has even discovered a major resource in the area. However, recent models have hypothesized that the shallow, mineralized part of this porphyry system might have been separated from the deeper root zones of the system by the N-S trending Hualapai Normal fault that runs through the center of the prospect. This hypothesis is supported by the 2010 discovery of an area of porphyry style mineralization under Quaternary gravels in the valley to the east of the Hualapai fault, and the presence of alteration minerals in the rocks west of the Fault that are characteristic of the deep root zones of other known porphyry systems. This study tests the fault hypothesis by comparing the temperature, pressure, and chemical (T-P-X) characteristics of fluid samples trapped in rocks from the Kabba prospect to fluid data taken from other porphyry systems to determine how similar the fluids in the Kabba system are to those found in productive porphyry deposits. Data from this study is still being processed but preliminary results show that the T-P-X condition of samples from both sides of the Hualapai fault have a general pattern that is consistent with the two areas of having formed as part of a single porphyry-like hydrothermal system, and are also consistent with the hypothesis that the two areas represent the deep roots and intermediate zones of a single faulted porphyry system.

Presentation: Pan-American Current Research on Fluid Inclusions (PACROFI), June 2014
Neutron Spectroscopy with Scintillation Detectors Using Wavelets
Jessica Hartman, Department of Mechanical Engineering

Nonproliferation goals are an integral part of the nuclear industry. As more attention is focused on the need to monitor and control nuclear material, the demand for efficient and accurate methods of identifying radiation sources also increases. This research focused on the development of a neutron spectrum unfolding method capable of identifying nuclear material based on detector measurements. Assuming detector output is the superposition of the response functions of all neutrons entering the detector, the response to a polyenergetic flux can be unfolded to produce a neutron spectrum. This spectrum can then be applied to identify sources. For this research the EJ-299-33A plastic scintillator was used, but the method can be adapted for use with any scintillator material. Verification testing of the unfolding method was carried out using neutron response measured using the Van de Graff accelerator at the University of Kentucky using the EJ-299-33 scintillator. This machine provided a range of monoenergetic neutron beams, making it possible to measure the response functions of the EJ-299-33A plastic scintillator detector to neutrons of specific energies. The polyenergetic response of a plutonium-beryllium (PuBe) source was measured using the source available at the University of Nevada, Las Vegas. Neutron spectrum reconstruction was carried out using the experimentally measured response functions. Data was processed to allow for source characterization based solely on the neutron response. The unfolding technique was implemented using the measured monoenergetic response functions and the PuBe response to produce an identifiable energy spectrum for the PuBe source.
Weathering Profiles at Mawrth Vallis Yield Insight into the Aqueous History and Potential Habitability of Mars
Seth Gainey and Elisabeth Hausrath, Department of Geoscience

Although abundant evidence exists for liquid water on Mars, the duration and characteristics of that liquid water remain under-constrained. The duration of liquid water, in particular, is important to questions of habitability, as the longer there was liquid water on Mars the more conducive it might have been to habitability. On Earth, thickness of weathering profiles can be quantitatively modeled, with inputs of measured geochemical parameters, and known durations yielding observed profile characteristics. Putative weathering profiles have also been previously modeled on Mars, yielding information about duration and characteristics of alteration. Of these putative weathering profiles, Mawrth Vallis may represent one of the largest alteration fronts on Mars. The stratigraphy of the Mawrth Vallis region is generally characterized by an Al-rich unit dominated spectrally by kaolinite and/or montmorillonite, overlying a Fe/Mg-rich unit(s) spectrally composed of nontronite and/or saponite. In order to interpret the potential implications of a weathering profile in the Mawrth Vallis region and other locations on the martian surface, we used the reactive transport model CrunchFlow, to forward-model alteration of nontronite, saponite and mixed deposits of clay minerals under soil-forming conditions to form an alteration front, such as that potentially observed in Mawrth Vallis. The results of these models suggest that the formation of an Al-rich capping unit observed in the Mawrth Vallis region can form from the dissolution of the Fe/Mg-rich underlying clay minerals.

Hydrologic evaluation in a Snow Dominated Watershed Using a Process Based Model
Chao Chen, Department of Civil and Environmental Engineering and Construction

Hydrologic processes are susceptible to meteorological conditions and spatial variation, especially in snow dominant areas. In order to evaluate the hydrologic processes in a snow dominant area, an alpine watershed, the Lehman Creek watershed, was studied. Lehman Creek is located in east of Nevada, and originates in high altitude mountains covering areas of snow and ice, which results in high snowmelt runoff. In this study a physically based, distributed-parameter model, the Precipitation-Runoff Modeling System (PRMS), was employed. Daily data was collected for streamflow, precipitation, temperature and solar radiation from four observation stations for different periods ranging between 1947 and 2012. Results showed less than 13% error in simulated streamflow for model calibration and validation except in 2011, due to the miss measurement in high runoff bypasses. The results showed that the shape and magnitude of runoff were successfully captured with low winter flow and peak summer flow. Parameter sensitivity analysis indicated temperature is a critical factor that an increasing portion of rain to snow, in precipitation leads to a pattern change in streamflow during both winter and spring. The results showed a successful application of hydrologic evaluation in a snow dominant area, using a physical process based model. The model is used to estimate future streamflow in Lehman Creek in response to climate change, and it is also used to estimate Lehman Creek’s contribution to the groundwater recharge in the Snake Valley.

Influence of *Larrea tridentata* on Chloride Concentration in Shallow Desert Soils
Sara Gedo, Department of Geosciences

Estimating groundwater recharge in arid regions is difficult. Alternating patterns of high evaporation and high precipitation cause varying soil properties, which control the soil’s ability to retain moisture near the surface. The chloride mass balance (CMB) method has been used to estimate paleo-recharge in arid regions. The method interprets vertical profiles of chloride (Cl-) concentration as estimates of past precipitation trends. This method is founded on assumptions that Cl- input from precipitation is spatially uniform, and that infiltrating water moves vertically downward, through a thick vadose zone. Influence from surficial processes is presumed to be negligible, and treated as background noise. However, processes such as biotic activity, micro-topography, and short-term climate effects, (i.e., weather) clearly influence Cl- concentration on short spatial and/or temporal scales. In this study, we consider if the effects of surficial processes propagate downward to significant depths. Field samples will be used to estimate the relative importance of these processes in the near-surface environment, and numerical simulations will be employed to consider downwards propagation of Cl- pulses under conditions of episodic precipitation. Results are expected to determine the depth where surficial processes become negligible. Additional knowledge of processes controlling recharge will result in more complete conceptual models for accurately predicting recharge, and therefore more thorough estimates of regional hydrologic budgets.
An Evaluation of Current Practices of Road Maintenance Contracting Methods
Kishor Shrestha and Pramen P. Shrestha, Department of Civil and Environmental Engineering and Construction

Departments of Transportation (DOTs) in the United States maintain their roads either by using in-house workers or by out-sourcing the works to private contractors. Out-sourcing uses two types of road maintenance contracting methods, prescriptive or method-based contracting (MBC) and performance-based contracting (PBC). This study conducted a survey with all 50 state DOTs and the District of Columbia to determine current road maintenance practices during the last 10 years. The state DOTs responded to questions about factors that influenced their selection of in-house and out-sourcing methods. Further, the survey included questions related to the satisfaction level of DOTs with various benefits of in-house, MBC, and PBC methods. The DOTs rated the satisfaction levels for those three methods with regard to cost effectiveness, schedule advantage, quality delivered, and risk transfer. The survey results indicated that, on average, the respondents were more satisfied with the in-house method in comparison to MBC and PBC methods. The respondents stated that the in-house method yielded high cost savings and schedule effectiveness and provided better quality and low risk to the DOTs. Lessons learned were identified pertaining to these contracting methods.

Presentation: Construction Research Congress, 2014
**Building Better Climate Models: When Caves and Computers Collaborate**
Jonathan Baker and Matthew Lachniet, Department of Geoscience

How will the global climate system respond to a rapidly warming atmosphere and ocean? Climatologists utilize computer models to forecast the potential impacts of anthropogenic climate change, but these models cannot be validated without accurate reconstructions of historical conditions. To that end, the goal of paleoclimatologists is to provide comprehensive proxy data sets of past global temperature, against which climate models can be tested. When analyzing global temperature changes over the past 2,000 years, and especially the past century, the overlap between modeled and proxy temperature reconstructions validates theoretical approaches with high statistical confidence. There is currently a mismatch in results, however, between these methods during the Early to Middle Holocene (11,600-4,500 years ago), for which proxy data seem to indicate that global temperature was much higher than has been postdicted by climate models. To address this discordance, we present a high-resolution proxy record from Kinderlinskaya Cave in Russia, which recorded changes specifically in winter climate for easternmost Europe over the entire Holocene (11,600 years ago to present). Our data suggest that proxy reconstructions of global temperature are biased toward summer conditions and may not be representative of global patterns. Additionally, modern winters in Eastern Europe are already warmer than at any point in the last 120,000 years. If this interpretation is correct, then computer models may already be closer to reality than current compilations of raw proxy data. By collaborating with climate modelers in reconstructing the past, therefore, we can better forecast Earth’s climatic future.

Presentations:
Geological Society of America Annual Meeting, Vancouver, BC, October 2014
American Geophysical Union Annual Meeting, San Francisco, CA, December 2014
Practical Procedure to Measure Mechanical Properties of Vaginal Tissue
Sogol Pirbastami, Brendan O'Toole and Mohamed Trabia, Department of Mechanical Engineering

**Objective:** There is a need to better understand the mechanical characteristic of pelvic tissues to develop more compatible biological materials and new mesh materials that would supplement the native tissue repair in pelvic organ prolapse. Towards that goal, we tested sheep vaginal tissues to develop, easily reproducible experimental procedures for measuring mechanical characteristic. Later, these procedures will be adjusted for use on corresponding human tissues.

**Methods:** The vaginal tissues were obtained from 10 sheep without POP. All sheep were 9 months old; their weight varied between 650 to 667 N. The uniaxial tensile tests were conducted. The force data were collected for each test in addition to using the camera system and the custom software to monitor the associated deformation. Experimental data were synchronized and used to calculate stress and strain values.

**Results:** The stress-strain curve showed the vaginal tissues exhibit a nonlinear behavior. Based on the tensile and stress relaxation tests, a viscoelastic model for sheep tissue is proposed. The stiffness of anterior showed lower value than posterior wall. Strain rate effect is similar for anterior and posterior sheep vaginal tissue.

**Conclusion:** Test results confirm both the nonlinear and anisotropic nature of the vaginal tissue. The non-uniform distribution of collagen and elastin fibers explains the nonlinearity. The fiber orientation influences the anisotropy. This research can be a basis for conducting similar testing using human vaginal tissues to assess their mechanical characteristics.
Graduate & Professional Student Research Forum

Fine Arts and Humanities

Platform Session A

UNLV Student Union Room 208B

8:45 – 9:00am  Monique Arar, Department of Music
9:00 – 9:15am  Aurora Brackett, Department of English
9:15 – 9:30am  Joleen Long, Department of English
9:30 – 9:45am  Clancy McGilligan, Department of English
9:45 – 10:00am Kayla Miller, Department of English

10:00 – 10:30am  Break

10:30 – 10:45am Camilla Oldenkamp, Department of Art
10:45 – 11:00am Derek Pollard, Department of English
11:00 – 11:15am Rebecca Robison, Department of English
11:15 – 11:30am Michelle Villanueva, Department of English
11:30 – 11:45am Denise Weber, Department of English
HIP Harpsichords: Historically Informed Performance of Early Keyboard Music
Monique Arar, Department of Music

This video presents a culmination of preliminary research done in Baroque keyboard performance through the selection of works by Bach, Couperin, Scarlatti and Frescobaldi. In the attempt to present a “HIP” or “Historically Informed Performance”, it is essential to understand the performance practices of the period, the instruments that were used, the aesthetic of the time, and the authenticity of the musical score. Research towards this presentation was conducted in 2014 at UNLV, the San Francisco Early Music Society Baroque Music Workshop (funded in part by GPSA and the Greenberg Scholarship) and the Early Music Vancouver Baroque Instrumental Programme.

Presentations: San Francisco Early Music Society Baroque Music Workshop, Sonoma State University, Rohnert Park, California, June 22-28, 2014
Vancouver Early Music Baroque Instrumental Programme, University of British Columbia, Vancouver, Canada, August 3-15, 2014
Hartford, Connecticut 1900: The Story of a Suicide
Aurora Brackett, Department of English

I spent two weeks last summer conducting research in Hartford, Connecticut in support of my novel in progress, The Mirror City. The novel takes place in Hartford in the early 1900s and my primary goal for research was to establish a stronger sense of both place and time for the story. I conducted a majority of my research at the Connecticut Historical Society, combing through old newspapers, maps and books. I mapped the neighborhoods where Jewish immigrants settled, where my characters would have lived, and though most of these neighborhoods are gone, I was able to visit a few sites still intact in the city.

My secondary goal for the project was to research the history of mental health treatment and mental hospitals in Connecticut. The novel is based, in part, on the story of my great-uncle, a young man and immigrant who suffered from mental illness and committed suicide. In support of this research goal, I visited a museum at one of the first mental hospitals in Hartford. The museum, “Myths, Minds and Medicine” is a history of psychiatry in the state of Connecticut, and was incredibly relevant to my project. But the most important discovery I made on the last day of my research, when I stumbled on the obituary for my great-uncle in the archives of the Connecticut Historical Society. The obituary was more a crime story than an obituary, a column-long article full of grisly details and dialogue, true to the sensationalist reporting of the time.
Sin City in Tokyo
Joleen Long, Department of English

I spent two months living in Asakusa, Taito City, Tokyo, Japan, during which I read several Japanese fiction books translated into English, began researching for my critical paper and translation project, and worked on and revised a draft of my novel. In addition to writing every day, I also visited Kofu Castle, Mount Fuji, Owakudani, Fushimi Inari Taisha, Yasaka Shrine, Kyoto, Ginza, Imperial Palace Gardens, Harajuku, Shinjuku, Senso-ji Temple, Asakusa Shrine, Ueno Park, Tokyo Skytree, Yuigahama Beach, Edo-Tokyo Museum, Kabukicho, as well as attended the Gion Matsuri Parade, Sumida River Fireworks, Hozuki-ichi Fair, and met my great aunt for the first time. I spoke with many Japanese people and expatriates in English and elementary Japanese. Traveling abroad to Japan has and will help me to understand my background as a sansei, a person born in the United States whose grandparents were Japanese immigrants, as well as to understand the differences and similarities between Japanese and American cultures. These understandings have and will help my writing to connect with others and to enrich the point of view that I write from. I will present some writing I composed while abroad, reflecting on cultural differences, and some photographs, as well as present my translation project.
In the last decade, postcolonial gothic fiction has attracted considerable attention. Such fiction “adapts a British narrative form that is highly attuned to the distinction and collapse between home and not home and the familiar and foreign” (Azzam iv). Gothic elements such as hauntings, violence, dangerous sexuality and torture feature prominently in J.M. Coetzee’s novel Waiting for the Barbarians, which explores imperial production of a racial or cultural other. As stated by Gaylard, the novel “refuses the appropriation of the other, the indigenous “barbarians”, by Empire, showing instead their inaccessibility to imperial discourse” (10). For the imperial magistrate who acts as the novel’s narrator, the othered barbarians remain inscrutable to various degrees. But while the othering in the novel principally depends on racial or cultural categories, the process also affects characters like the agent of empire whose arrival initiates the story. As a result, the narrator inhabits a fictional world pervaded by a sense of unknowability or inaccessibility, which heightens the sense of the gothic. In this paper, I will describe and analyze the effects of inaccessibility in Coetzee’s novel and its relation to the other, discussed from postcolonial and epistemological viewpoints. I will then show how the tension between the self and the other contributes to gothicness.

Works Cited:


Presentation: PCA National Conference in New Orleans, LA, April 1-4, 2015
John Wayne in Spain
Kayla Miller, Department of English

As an MFA Fiction candidate in UNLV’s creative writing program, the motivation behind my summer 2014 travel abroad was twofold: utilitarian, as a requirement of my degree program, and more importantly, literary. Ultimately, I used my time in Spain (mostly Alicante) to engage more robustly with the headspace of my novel's protagonist. Though I absolutely flexed and strengthened my Spanish language skills, I simultaneously sought immersion in a culture foreign from myself in order to press the levels of my comfort with being an outsider. My MFA thesis, a Gothic novel, focuses on a protagonist who feels isolated and very much “outside” his surroundings; his status as outsider is enacted in a specifically surreal way. By planting myself in unknown waters without the securities of acquaintances or even language, my time in Spain was saturated with a feeling of distance, both among but disparate from those around me. The obstacles I encountered while submerged in this experience of marginalization worked to bolster my connection with my main character, who never feels he can comfortably move through his environs. As a work of postmodern Gothic amidst the evolution of Las Vegas as a literary landscape, the novel I hope to finish as my thesis at UNLV hinges upon my experiences as “outsider” in Alicante, Spain.
Enlightenment
Camilla Oldenkamp, Department of Art

Making visual art my career choice and having a deep fascination with religion I have often attempted to bridge the valley that seems too often divide the two. By approaching my artwork as more of a foundation in research than in allowing emotions to dictate what type of work I create, I believe I have the potential to bridge this gap.

Gallery patrons enter into the white walls of a frigid art gallery. In the center of the room, hung from the high 25 foot ceiling and 10 feet off the ground is a large, 7 feet in diameter, circle of lights. As you proceed closer you begin to feel the radiating heat produced from the fixture. In order to keep yourself warm in such a chilled space you and the other patrons congregate beneath the warmth of the lights. As you begin to warm you notice a few other works of art along the white gallery walls. You venture out from beneath the warm lights and work your way along the walls reading these segments of text as you go. This research and final art piece will have the chance to not only bring artists and believers together for a safe conversations but even bring together the many religions throughout the city and present this common foundation nearly all religions were built on.

This work goes beyond asking the audience to look at the piece as a work of art and puts them in an environment where they become part of the work itself and in turn part of the conversation.
The Poem as Plastic Art: Mina Loy’s “Brancusi’s Golden Bird”
Derek Pollard, Department of English

My presentation will focus on the ways in which Mina Loy’s poem “Brancusi’s Golden Bird” engages the sculptor Constantin Brancusi’s Golden Bird. Although Loy’s text can be categorized as an ekphrastic, her response to Brancusi’s work is also a visio-poetic analogue to the physical art object the sculptor constructed. My paper will explore the plastic qualities of the poem by reading it alongside Golden Bird. Additionally, it will tease out what is being staked when Loy, carrying forward Italian Futurist and Parisian Dada precedent, moves the text toward what Hugo Ball, founder of the first Dada café, the Cabaret Voltaire, described as the Gesamtkunstwerk, or “total work of art.”
In February I was fortunate enough to win a scholarship to the Society of Children's Book Writers and Illustrators Winter Conference in New York City. There I was able to present the first 500 words of my Fiction MFA thesis manuscript to industry editors and agents for feedback, as well as attend several panels and breakout sessions regarding the craft and the professional logistics of Young Adult and Middle Grade writing and publishing. I learned that my Middle Grade novel was actually more suited for Young Adult readers, and thanks to the help I received at the conference, I now have several strategies in mind to edit my manuscript.
Poetry as an Ethical Act: The Human Will in T. S. Eliot’s “Ash Wednesday”
Michelle Villanueva, Department of English

For my presentation, I propose discussing a paper I presented at the Rocky Mountain Modern Language Association conference in Boise, Idaho in October 2014. I received funding from GPSA this past fall in order to attend the conference and present my paper. My presentation would be a 10 minute slideshow outlining the major points of the paper I presented at the conference. The abstract for that paper follows:

In his poem “Ash Wednesday,” T. S. Eliot writes, “Teach us to care and not to care.” Caring and not caring are placed in tension with one another, with both existing alongside one another as lessons the speaker wishes to learn. “Ash Wednesday” is a poem marked by disparate elements existing in tension with one another. This paper explores how “Ash Wednesday” expresses ambivalence as regards time versus timelessness, materialism versus idealism, and the human will versus divine action. In particular, this paper discusses how the poem embraces Augustinian idealism, but not to such an extent that it would discount the material world outright, while also setting forth Thomistic materialism, though it does not go to the extreme of making salvation unnecessary. In refusing to resolve this tension, “Ash Wednesday” avoids the extremes that may come from endorsing one position and rejecting the other, which allows it to affirm the need for divine action while also holding out poetry as an ethical and even virtuous human activity.

Presentation: Rocky Mountain MLA Conference, Boise, Idaho, October 2014
We live in the Anthropocene age, a period marked by the effect of human activity on the planet, and citizens all over the world have become increasingly focused on conservation efforts. In my travels to Costa Rica, I paid close attention to the workings of a tourist economy centered in nature: its diverse climates and geographic features hosted a variety of life forms, while resorts and hostels alike facilitated the reduction of waste and the use of eco-friendly products. On the other hand, I found that the gutters in its capital city, San José clogged with litter when it rained. I observed cloud- and rain-forests are still being clear-cut and used for cattle farming and palm plantations. My poetry is often inspired by the complex relationship between humanity and nature. Visiting Costa Rica’s dense jungles and rough beaches was humbling, and my poetry has taken this humility to heart. I write of saints and prophets as regular people, faulted and accessible, transposed into the landscapes I’ve lived in and visited: Las Vegas and Mesa Verde in the U.S., and Belize and Costa Rica in Central America. I will be presenting some of these poems (along with photos), examining the profound within things overlooked, and the vulnerability of our mortal condition.
Graduate & Professional Student Research Forum  
*Social Science*  
Platform Session A  
UNLV Student Union Room 208C

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<th>Time</th>
<th>Presenter &amp; Department</th>
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<td>9:00 – 9:15am</td>
<td>Paige Bockman, Department of Anthropology</td>
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<td>Wei An, Department of Psychology</td>
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<td>Katelyn DiBenedetto, Department of Anthropology</td>
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<td>Monica Bolton, Department of Psychology</td>
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<td>10:30 – 10:45am</td>
<td>Krystal Hammond, Department of Anthropology</td>
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<td>Antoinette Izzo, Department of Anthropology</td>
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The aim of this project is to explore the iconography of Chalcolithic (c. 3900-2300 cal. BC) Cyprus via ceramic motifs and their potential use in revealing differences between the identities of archaeological groups, as well as the possible causes of such variation. Currently, Cypriot Chalcolithic sites are believed to be largely homogeneous in identity, culture, and practice; however, inter-site variation has not been a focus of investigation. The study focuses on the iconography (the collection of visual art and symbols) of painted motifs found on female ceramic figurines, ceramic figural vessels, and decorated ceramic bowls belonging to five Chalcolithic sites. Multiple statistical methods will be used to analyze the degrees of similarity and difference between the iconographic repertoires of individual sites, and interpretations of some prominent motifs will be offered. While this presentation will only cover preliminary conclusions, it is highly likely that this research will reveal previously unnoticed variations in iconography that suggest differences in site identity. This, in turn, can greatly inform further research into trade, communication, and movement on the island during the Chalcolithic, a period about which very little is known.
Human eye movements have been shown to index memory, but most studies have focused on item recognition memory. In the present study, we examined the effects of levels of processing (LOP) and divided attention (DA) manipulations on memory-related eye movements in two relational recognition memory experiments. In Experiment 1, participants studied object-landscape picture pairs either deeply or shallowly. At test, they decided which one of three studied objects had been paired with a studied landscape background while their eye movements were recorded. In Experiment 2, the effects of divided attention at study were investigated in a similar procedure. Both LOP and DA manipulations affected memory performance, with participants in the deep (Experiment 1) and full attention (Experiment 2) conditions showing better memory performance compared to those in the shallow (Experiment 1) and divided attention (Experiment 2) conditions respectively. Analyses of participants' eye movements indicated both item memory effects for the individual pictures and relational memory effects for the picture pairings. Finally, only the LOP manipulation in Experiment 1 affected participants' eye movements; the DA manipulation in Experiment 2 had no effect on eye movements. This pattern of results suggests that eye movements at retrieval may reflect both quantity and quality of memory, instead of simply tracking memory strength as found in several previous studies.
Rafts (or floats?) 'Ahoy: Documenting Animal Transportation to Cyprus during the Pre- and Early Neolithic
Katelyn DiBenedetto, Department of Anthropology

It was initially held that the Mediterranean islands did not play a major role in the spread of domesticates from the Near East throughout the Mediterranean, in part because these islands were thought to be late recipients of a substantial human presence that first occurred in the Late Neolithic. Recent research from Cyprus, in particular, has changed this scenario with the documentation of both a Late Epipaleolithic and Early Neolithic presence, raising the question of how these early inhabitants transported not only themselves but also animals to the island. Archaeological evidence suggests that both wild and domesticated animals were introduced during this time frame. None are endemic to Cyprus, which has been oceanic, implying the use of watercraft. Unfortunately, only a few preserved watercraft remains have been found around the Mediterranean. Little research has been done on a cross-cultural comparison of the type of watercraft technology used to transport animals. The purpose of this paper is to present results from a study using electronic Human Relations Area Files (eHRAF). While ethnographic studies cannot definitively settle this issue, combined with the current available archaeological evidence, it can provide stronger models for how the earliest inhabitants might have transported animals to Cyprus.

Interactions of Behavioral Training and Ketamine Administration on Changes in Parvalbumin Positive Neurons
Monica Bolton, Chelcie Heaney, Andrew Murtishaw, Michael Langhardt and Jefferson Kinney, Department of Psychology

Ketamine is a high affinity non-competitive antagonist of the ionotropic N-methyl-D-aspartate (NMDA) glutamate receptor. Numerous recent clinical studies have demonstrated a rapid-acting antidepressant effect of subanaesthetic ketamine. In preclinical studies, such as those performed in our laboratory, chronic (15 days) subanaesthetic administration of ketamine resulted in learning and memory deficits in rodents. We have also observed an increase in the number of and altered position of parvalbumin (PV) positive neurons in the CA3 field of the hippocampus in ketamine treated animals. Our timeline of the change in PV neuron number may be related to recent data indicating an antidepressant role of ketamine. However, the mechanisms by which ketamine exerts its effects is not known. In the current study, we were interested in if the change of PV neuron number and position observed in previous studies may influence antidepressant like behavioral changes due to ketamine. We performed the forced swim test to the groups of rats receiving 15 days of saline or ketamine. Results indicate that chronic ketamine administration without behavioral testing did not result in an increase in the number of PV neurons. Similarly, no differences in PV neuron position were observed in these studies. These data indicate that behavioral engagement throughout the course of ketamine administration is necessary in order to alter PV neuron number and position. In addition, our data demonstrate that in the absence of the change of PV neuron number chronic ketamine increased struggle time in the forced swim test versus controls.

Presentations:
Society for Neuroscience, Washington, DC, November 15-19, 2014
American Chemical Society, Las Vegas, NV, November 22, 2014
Young Earth creationists view the natural world in a manner far different from the average anthropologist. Very little secular media support a Young Earth creationist perspective. Therefore, pursuant to conveying the world in a manner that is in keeping with their worldview, Young Earth creationists have produced magazines and other forms of media that specifically address science and theological topics relating to the age of the earth as well as archaeological finds relevant to the veracity of biblical texts. From Angkor to the American Southwest, Young Earth creationists have used archaeological discoveries to attempt to validate the first ten chapters of the book of Genesis. Additionally, art and figurines from a number of sites have been used to support Young Earth arguments for human coexistence with dinosaurs. This paper will discuss how those with a Christian religious identity paired with Young Earth creationist views interpret archaeological discoveries.
Identity is a powerful construct that not only informs who we are as individuals, in relationships, and across cultures, but also influences behavior and affect (such as jealousy). In recent decades, polyamory, the practice or desire of having concurrent and meaningful romantic, sexual, or otherwise intimate relationships, marked by transparency and consent of all partners’ has emerged as a distinct relationship orientation identity juxtaposing conventional mating strategies (i.e. monogamy, serial monogamy, and cheating) in the U.S. and other developed countries. But even among those who self-identify as being polyamorous, there is great variation in the ways and extent in which this identity manifests in lived experience.

Despite an abundance of anecdotal and increased public discourse about various forms of consensual non-monogamy (CNM), these relationship strategies have received little empirical attention compared to their mononormative counterparts. As a result, little is known about polyamory as germane to the psychology, emotionality, and perceptions of the individual, nor as a distinct social identity. This present study captures variations in situational affect in relation to the extent of monogamous and polyamorous identity. A nonrandom convenience sample of adults took part in the study (N=628). As expected, results from regression analyses revealed that across numerous independent variable, relationship orientation identity was the single most predictive factor of self-reported jealousy, and greater degrees of polyamorous identification were significantly related to decreased self-reports of jealousy. Results are interpreted in light of social identity theory.
Social Physique Anxiety, Body Surveillance, Ethnic Identity, and Bulimic Symptoms among Mexican American Women
Kimberly Claudat and Cortney S. Warren, Department of Psychology

Introduction: A growing body of research suggests that social physique anxiety is associated with disordered eating. However, the extent to which cultural factors, such as ethnicity and ethnic identity, influence this relationship remains unexplored. The purpose of this study was to examine the relationships between social physique anxiety, body surveillance, and bulimic symptomatology in a sample of Mexican American women. We also examined whether ethnic identity moderated the relationship between social physique anxiety and bulimic symptoms and the relationship between body surveillance and bulimic symptoms.

Method: Participants were undergraduate women who self-identified as Mexican American (N = 206, Mage = 19.57). The majority of the study sample consisted of second generation Americans (N = 136). Participants completed self-report measures of study variables online in exchange for course credit.

Results: Path analysis results indicated that social physique anxiety contributed to bulimic symptoms both directly and indirectly through body surveillance. Moderator analyses indicated that ethnic identity was not a significant moderator of the core relationships of interest.

Conclusions: Results highlight that social physique anxiety and body surveillance may contribute to disordered eating among Mexican American women; and that ethnic identity may not significantly influence these relationships in this population.

Presentation: Annual Meeting of the Eating Disorders Research Society, October 2014
Picrolite Carving in Neolithic Cyprus: An Introduction
Forrest Jarvi, Department of Anthropology

Picrolite, a fibrous green stone originating in the Troodos mountains on the island of Cyprus, appears in the archaeological record almost from the very earliest sites on the island. Thus far, few publications have addressed the material from anything but a descriptive perspective. Research at the Aceramic Neolithic site of Kritou Marottou Ais Giorkis has uncovered a wide variety of picrolite artifacts since excavations began in 1997. Preliminary experimental studies have begun to explore the ease of both obtaining and manipulating the material using only local materials and unassisted manpower. Excavations in 2013 and 2014, the latter of which was funded in part by the UNLV Graduate & Professional Student Association, have been instrumental in broadening the scope of information available on the stone. Other members of the excavation crew, including UNLV students Michael Stukas, Trent Skinner, and Katelyn DiBenedetto, have assisted me in collecting information on the potential geological sources and carving techniques necessary to generate the variety of picrolite artifacts found at Kritou Marottou Ais Giorkis and other contemporary and later sites on the island. This presentation will discuss the existing publications on the material, their strengths and weaknesses, and the future directions of study necessary to give a more holistic look at the material and its social, geographic, and archaeological contexts.
Graduate & Professional Student Research Forum

Social Science

Platform Session B
UNLV Student Union Room 209

9:00 – 9:15am Matthew Martinez, Department of Anthropology

9:15 – 9:30am Andrew Murtishaw, Department of Psychology

9:30 – 9:45am Michael Moncrieff, Department of Anthropology

9:45 – 10:00am Alex Nelson, Department of Anthropology

10:00 – 10:30am Break

10:30 – 10:45am Jessica Nave-Blodgett, Department of Psychology

10:45 – 11:00am Cristina Tica, Department of Anthropology

11:00 – 11:15am Liya Rakhkovskaya, Department of Psychology

11:15 – 11:30am Shelly Volsche, Department of Anthropology
Self-infliction of Pain as Reputational Commodity
Matthew Martinez and Pierre Lienard, Department of Anthropology

Ethnographers have extensively documented societies where high-risk and painful religious activities can be found. Much attention has been given to extraordinarily painful performances featuring religious practitioners deliberately harming themselves in front of audiences. However, there has been no systematic cross-cultural study looking at the motivations and rationale for such practices. We propose that such institutions constitute coordination signals particularly efficient in some socio-political landscapes. Data gathered from the Human Relations Area Files make apparent the sociological, demographic and environmental correlates of deliberate painful and public (religious) practices. These practices are typically found in tribal and modern societies of moderate to large sizes. These societies are characterized by weak formal political institutions, restricted economic opportunities, low upward social mobility, and often, rigid status hierarchies. In such constrained social worlds, costly acts involving self-harm may serve to bolster one’s reputation and standing when alternative means to do so are scarce or unavailable. Engaging in such displays affords individuals the means to change others’ perception of the formers’ respectability and resourcefulness and of their relevance for particular situations demanding the specific skills advertised in the painful public performances: strength of will, fearlessness, fierceness, resoluteness and readiness for extreme actions if a situation were to call for it.
Chronic LPS-induced Inflammatory Response in a Diabetic Model of Alzheimer’s Disease
Andrew S. Murtishaw, Chelcie F. Heaney, Monica M. Bolton, and Jefferson W. Kinney, Department of Psychology

Alzheimer’s disease (AD) is a neurodegenerative disorder of unknown etiology. Only a small proportion of AD cases are due to genetic mutations (familial AD), whereas the vast majority of cases are late onset and sporadic in origin. The cause of sporadic AD (sAD) is likely multifactorial, with interactions of external factors, biological, and genetic susceptibilities that contribute to the onset and progression of the disease. Diabetes Mellitus (DM) and neuroinflammation are two of the most common risk factors that have been implicated in sAD. In order to evaluate possible interactions between DM and inflammation in AD, we are investigating the effects of neuroinflammation in a diabetic-model of sAD on behavioral and pathological markers. Previous research in our lab has demonstrated that a one-time acute inflammatory response (LPS administration) in a diabetic animal model produced subtle improvements in a spatial learning task. Our data further demonstrated that diabetic animals that underwent the immune activation displayed significantly reduced elevation of oligomeric beta-amyloid compared to the diabetic alone group. The current investigation is directed at determining the effects of a chronic inflammatory response on diabetic-induced deficits relevant to AD. One week following the onset of diabetogenic compound, LPS was administered twice per week for 8 weeks in order to chronically activate the immune system. Learning and memory was examined in the novel object recognition and Morris water maze tasks, following which hippocampal tissue will be examined for pathological markers of AD.

Presentations:
A Natural History of the Drag Queen Phenomenon
Michael Moncrieff and Pierre Lienard, Department of Anthropology

The drag queen phenomenon has drawn much attention over the past decades. Much of the research has focused on the sociopolitical motivations to perform in drag, such as the critique of traditional gender roles and queer political militancy. Although, interesting, such interpretive descriptions of Drag Queen practices do not easily account for the emergence of the phenomenon with its characteristic traits of hyperbolic depiction of womanhood, and aggressive and exaggerated behavioral expression. We argue that drag performance is best understood at an individual and, more specifically, psychological level. Signaling theory has provided the theoretical framework for better explaining evolutionarily puzzling human behaviors. However, this theoretical framework has not been systematically employed for the scientific study of the drag queen phenomenon. Signaling theory provides a relevant framework to explain why marginalized individuals in the gay male community find it attractive to engage in a drag queen lifestyle given the reputational benefits they stand to gain. Typical organizational features of the gay community play a role in the emergence of the phenomenon. Data collected from a gay male population and from a broader U.S. population supported a costly signaling framework for understanding the drag queen phenomenon. Further implications of the findings will be discussed.

Presentation pending: The NorthEastern Evolutionary Psychology Society Conference, April, 2015
Serious Drinking Games: Christian Men’s Negotiation of Corporate Drinking Practices and Religious Identity in South Korea
Alex Nelson, Department of Anthropology

In South Korea Christian men face a dilemma when invited to engage in corporate drinking. If they participate fully they have the chance to compete for status and intimacy among their colleagues. The rules of this competition or “serious game” (to use Ortner’s concept) are derived from a configuration of practices reinforced by naturalized social structures that form the basis of what Connell calls “hegemonic masculinity.” Through the subtle status competition inherent in corporate drinking, participants not only enjoy a sense of camaraderie and stress relief but vie for information and opportunities which can lead to advancement in one’s career. However, Protestant Christianity in Korea discourages drinking by its members, resulting in the belief, held by Christians and non-Christians alike, that Christians should not drink. Whether or not one drinks alcohol is also a proxy indicator of religious sincerity and a marker of one’s Christian identity. Thus when a Christian man is invited to engage in corporate drinking, he is forced to choose between reinforcing his identity as a sincere Christian, and claiming the benefits of a central ritual of Korean social life that has serious implications for one’s career and relationships. Using ethnographic data collected during pilot studies in Seoul in 2013 and 2014, this paper investigates the engagement of Christian men in these processes of identity negotiation, illuminating variation throughout men’s life course and the broader implications of the deceptively simple decision of whether and how much to drink and the pressures weighing on that decision.

Do People Hear Multiple Levels of Metrical Hierarchies in Music?
Jessica E. Nave-Blodgett, Erin E. Hannon and Joel S. Snyder, Department of Psychology

Humans are capable of perceiving a steady beat in auditory patterns such as music and using this information to make perceptual judgments. However, little is known regarding our ability to hear multiple levels of time simultaneously. The hierarchical patterning of time (meter) can be used to predict forthcoming patterns in music, aid in synchronizing group performances, and guide dancing. Yet we do not know the capabilities of metrical attending in adults and children. In this study, we presented listeners excerpts of ballroom dance music paired with metronomic click tracks. The fit of the click track to the musical excerpt was manipulated with the beat- or measure-level of the click track either synchronous or asynchronous with the beat and measure in its paired musical excerpt. This created four conditions â beat and measure asynchronous (BA/MA), beat synchronous and measure asynchronous (BA/MS), beat synchronous and measure asynchronous (BS/MA), and beat and measure synchronous (BS/MS) to the musical excerpt. Participants rated how well the click track matched the music. We presented this task to college-aged musicians and non-musicians to children 5-10 years old. In adults, we found a main effect for beat synchrony, and an interaction between beat- and measure-level synchrony. Participants rated beat and measure-synchronous (BS/MS) click tracks as fitting better than beat-synchronous (BS/MA) alone tracks. In children, we found a main effect of beat synchrony. Children did not display an interaction between beat and measure. The development of metrical perception may take many years and not complete until sometime in late adolescence.

Presentation: New England Sequencing and Timing (NEST) Conference, University of Massachusetts, Amherst, March 7, 2015
Osteoarthritis in the Elbow and Knee from a Modern Documented Cemetery Collection in Cyprus: Using “New” Bones to Understand “Old” Ones
Cristina Tica, Department of Anthropology

Osteoarthritis is one of the more ubiquitous and abundant forms of pathology seen on ancient material. Osteoarthritis (OA) has a complex etiology with variable clinical characteristics. Documenting it is important because it may shed light on aspects of lifestyle (e.g. occupational), and social and cultural habits. Osteopathology studies conducted on modern, documented skeletal collections can add an important dimension. The aim of this paper is to present patterns of OA in the elbow and knee associated with both primary and secondary causal factors related to the development of the condition in a modern skeletal collection. Additionally, this paper discusses how different factors may contribute in the development of OA, and how these should be considered by the bioarchaeologists when interpreting OA in ancient populations. The objective of this paper is to showcase that advanced age is not necessarily the only causal factor, nor is it the only reason for the presence of OA.

Presentation pending: SAA in San Francisco, April 2015
Ethnic and American Identity as Correlates of Eating Pathology in College Women
Liya Rakhkovskaya and Cortney S. Warren, Department of Psychology

Background: According to popular racial and cultural formation theories, ethnic identity is defined as the process of identifying with the culture and practices one’s ethnic group, while American identity is defined as the process of identifying with the culture and practices of the United States. Ethnic identity and American identity are positively associated with mental health in ethnic minority and European American individuals, respectively. Furthermore, a growing body of research suggests that ethnic identity is associated with diminished eating pathology in minority women. However, the protective effects of ethnic identity against eating pathology are unexplored in European American women. In addition, the relationship between American identity and eating pathology is unexplored in all ethnic groups.

Method: To expand our understanding of these constructs, this study examined the relationships between ethnic identity, American identity, thin-ideal internalization and eating pathology in 1018 ethnically diverse college women. Participants completed questionnaires online for course credit.

Results: Results indicated that ethnic identity moderated the relationship between thin-ideal internalization and eating pathology for African Americans and Asian Americans, such that the relationship was weaker for women with strong ethnic identity. In contrast, American identity did not predict or moderate eating pathology. Nevertheless, American identity was a significant positive correlate with eating pathology and/or thin-ideal internalization in all ethnic groups.

Conclusions: Overall, these findings suggest that ethnic identity serves as a protective factor against eating pathology, while American identity may be a factor of risk, and that ethnic identity and American identity are related but distinct constructs.

Presentation pending: International Conference for Eating Disorders (ICED) in Boston, MA, April 24, 2015
Is the Romantic/Sexual Kiss a Human Universal?
Shelly Volsche, Department of Anthropology

Scholars from a wide range of human sciences have become interested in the romantic/sexual kiss. This research, and its public dissemination, often includes statements about the ubiquity of kissing, particularly romantic/sexual kissing. Furthermore, it has been suggested that romantic/sexual kissing is an evolutionary adaptation as part of human mate selection. Yet, to date there is no evidence to support claims that the romantic/sexual kiss is a human universal. Employing standard anthropological methods, this paper is the first attempt to use a large sample to document the presence or absence of the romantic/sexual kiss across cultures. Despite frequent depictions of kissing in a wide range of material culture, we found no evidence that the romantic/sexual kiss is a human universal or even a near universal. The romantic/sexual kiss was present in a minority of cultures sampled (45.8%). Moreover, there is strong relationship between the presence of the romantic/sexual kiss and a society’s relative social complexity: the more socially complex the more likely romantic kissing is present.

Graduate & Professional Student Research Forum
Social Science
Platform Session C
UNLV Student Union Room 211

9:15 – 9:30am  Sarah MacIntosh, Department of Anthropology
9:30 – 9:45am  Emma Ross, Department of Psychology
9:45 – 10:00am William Willis, Department of Anthropology

10:00 – 10:30am  Break

10:30 – 10:45am Christina Vanden Bosch der Nederlanden, Department of Psychology
10:45 – 11:00am Aaron Woods, Department of Anthropology
11:00 – 11:15am Davor Zink, Department of Psychology
11:15 – 11:30am Stefanie Moyinhan, Department of Psychology
Technological changes often mark or parallel societal development and more importantly, may reflect larger changes in sociopolitical and economic domains. As societies advance technologically, venues emerge for new crafts and specialization, and new patterns of sociopolitical and economic organization may evolve. This paper chronologically presents major technological developments from the Pre-Pottery Neolithic A period (circa 10000 to 9000 BCE) to the Middle Bronze Age period (circa 2500 to 2000 BCE) using documented archaeological evidence in the Near East in general and Anatolia (present-day Turkey) in particular. Each societal transition is associated with specific sociopolitical and economic domains that reflect new adaptations in architecture, ceramics, lithics, and subsistence strategies. I probe how these technological advancements stimulate social change as well as how these new technologies can accelerate the rate at which social organizations may progress from hunter-gatherer bands to complex societies. Furthermore, I investigate the potential reasons and decisions that may have driven modern humans to rapidly adopt and incorporate selected new technologies like lithic blades and the potter’s wheel, while certain technologies were selected to progress at a slower rate like bone, antler, and ivory technologies. I seek to demonstrate that selectively adopting particular technologies became a driving force for social change at varying rates throughout prehistory.
Depression and Dissociation as Predictors of Posttraumatic Symptoms among Community Youth
Emma Ross, Christopher Kearney and Kyleigh Sheldon, Department of Psychology

Childhood maltreatment is associated with increased risk for lifetime and current PTSD. Maltreated youths with PTSD have significantly more comorbid diagnoses than maltreated youths without PTSD, especially with respect to internalizing disorders such as depression and dissociation. This study examined depression and dissociation as predictors of posttraumatic symptoms among a large (N = 227), ethnically diverse, and gender balanced sample of maltreated youths. In addition, the present study evaluated individual subscales on prominent depression and dissociation instruments as unique predictors of posttraumatic symptoms for this population. Participants consisted of youths in DFS custody referred for psychological evaluation following removal from their primary caregiver for reasons such as neglect and sexual maltreatment. Multiple regressions revealed dissociation and depression as significant predictors of PTSD symptoms. Post-hoc analyses of ADES and CDI subscales revealed anhedonia to be the single best predictor of PTSD symptoms, followed by Dissociated Relatedness, and Negative Mood, with all three accounting for over 27% of the variance in PTSD symptoms. Results supported the main hypothesis but suggest that anhedonia, negative mood, and depersonalization/derealization may be equally important risk factors for PTSD symptoms as the larger constructs of depression and dissociation, themselves. Given that depression and dissociation are enormous constructs and can thus manifest differently from one individual to the next, isolating specific predictors of heightened PTSD symptoms for maltreated youths is critical because it facilitates more accurate identification of victimized youths at highest risk for PTSD.

Presentation: Association for Psychological Science (APS) Annual Convention, May 24 2014
The Role of Water Salinity in Limestone Tempered Logandale Gray Ware Ceramic Production in the Moapa Valley, Nevada: An Experimental Approach
William Willis and Karen Harry, Department of Anthropology

Limestone has been shown to be an advantageous temper to use in utility vessels due to its ability to affect factors that mitigate problems caused by heat expansion and thermal shock during the use cycle of ceramics. Specifically, limestone alters the characteristics of the clay, allowing for the manufacture of thinner walled vessels. Additionally, it has similar thermal expansion characteristics as clay itself. However, it has been noted that limestone temper has a propensity to spall, thus compromising the structural integrity of the vessel. It has been demonstrated that the use of salinized water in the manufacturing process precludes such spalling. Through experimental means, this paper explores the potential use of salinized water sources in the production of Logandale wares that appear during the Basketmaker III period in Southern Nevada. The question of whether the Muddy River contains enough salt to counterbalance the spalling of limestone temper during firing is investigated, and the constraints around the necessary salinity of water needed for optimum results is explored.

Categorizing Speech and Song in Childhood and Adulthood
Christina M. Vanden Bosch der Nederlanden, Erin E. Hannon and Joel S. Snyder
Department of Psychology

While teasing apart speech and song may not be difficult in adulthood, it is possible that children must learn to differentiate these two classes of human communication. In infancy, the difference between speech and song is less stark and infant-directed speech has even earned the nickname “musical speech.” We organize the sounds around us into categories of auditory objects to help form expectations when novel exemplars of a category are encountered (Gelman & Meyer, 2011). Categorical knowledge of speech and song may allow listeners to selectively attend to the relevant acoustic characteristics for extracting meaning in music and language. Thus, successful categorization of speech and song may be an important step in the development of language and music processing.

Children (4-, 6-, & 8-year-olds) and adults categorized spoken and sung sentences that were closely matched for average F0, F0 range, and total duration in addition to two ambiguous types of speech: infant-directed speech and ambiguous speech that transform to song. Children and adults readily differentiate between speech and song with greater percentage of song ratings for sung sentences than spoken sentence (Adults: 100% vs. 11%; Children: 82% vs. 12%). Adults perceive ambiguous excerpts as more song-like than speech (24%), while infant-directed speech is perceived as song less than 1% of the time. Children show a similar pattern of results, but the pattern varies with age. Greater F0 stability, longer average duration, and higher pitch predicted listeners’ ratings.

Rhythmic characteristics in the categorization of speech and song will also be discussed.

Presentation: Auditory Cognitive Neuroscience Society (ACNS), January 2015
Evaluating Land Use in the Mojave Sink: Survey Data from Afton Canyon, San Bernardino County, California
Aaron Woods, Barbara Roth and Katelyn DiBenedetto, Department of Anthropology

The primary objective of this research project is to assess the function of sites located on the rim and plateau above Afton Canyon in the Mojave Desert to determine how they fit into regional patterns of subsistence and settlement defined during previous work in the area. Archaeological sites identified during a recent survey include multi-component artifact scatters, lithic reduction areas, and hunting blinds. These sites provide new information on prehistoric use of Afton Canyon. We present the survey results, discuss site locations and function, and reconstruct patterns of occupation in the canyon. The connection between sites in Afton Canyon and other sites in this portion of the Mojave Desert is explored as part of an on-going effort to better understand regional prehistoric land use in the Mojave Sink.

Presentation: The 34th Great Basin Anthropological Conference, October 15-18, 2014
Pending: The 80th Annual Society for American Archaeology Meetings, April 15-19, 2015
Sensory and Motor Deficits in Spanish Speaking Individuals with Schizophrenia
Davor Zink, Liza E. San Miguel and Daniel Allen, Department of Psychology

Research suggests individuals with schizophrenia (SZ) present with sensory and motor deficits. In Puerto Rico, comprehensive neuropsychological assessment of SZ occurs infrequently, so further investigation of sensory and motor deficits is needed. This study examined sensory and motor functions in a sample of Hispanic normal adults and individuals with SZ.

The sample consisted of 81 Spanish speaking individuals (40% female; mean age 36) divided into a normal control group (NC) (n = 59) and a SZ group (n = 22). The Dean-Woodcock Sensory and Motor Battery (DWSMB) was administered in Spanish to all participants. The DWSMB consists of nine tests that assess auditory, visual, and tactile acuity, and nine tests that measures gross and fine motor skills, balance, expressive speech, grip strength, coordination, and lateral preference. Significant differences were expected between the NC and SZ groups, with the SZ group performing worse than controls.

T-tests comparing groups on the 35 DWSMB items indicated significant differences for 21 items after controlling for multiple comparisons (alpha level < .002). The SZ group performed significantly worse than controls. T-scores ranged from 3.54 to 8.39. As hypothesized, individuals with SZ performed worse than controls on most of the DWSMB tests. Findings suggest sensory and motor deficits identified in English speaking individuals with schizophrenia were also present in this Hispanic sample, and the DWSMB is useful for evaluation of these deficits. We were unable to determine whether these deficits were a primary feature of the SZ itself, or might be caused by secondary influences (e.g., antipsychotic medication effects).

In the past, sport psychology researchers have primarily used self-report measures, specifically questionnaires, to explore the general experience of marathon running. Because this procedure is widely accepted among researchers, there is little skepticism as to whether marathoners' self-reports of their experiences are accurate. Such studies have drawn conclusions regarding relationships between experience factors and marathon performance. However, there are no studies investigating the actual ongoing inner experience while running a marathon: what people are actually experiencing (thoughts, feelings, sensations, etc.) on a moment-to-moment basis when they are running an intensive race. This study will use a phenomenological approach, Descriptive Experience Sampling (DES), to explore the inner experience of marathoners running a marathon. DES uses a device that emits a random beep via an earpiece. Participants record momentary inner experience immediately after the beep and are interviewed about these experiences within 24 hours. There are three main issues that arise regarding questionnaire use that this study will address using DES: one, questionnaires are retrospective and subjective, asking runners to recall their experience after the fact (sometimes days or months after the fact); second, questionnaire items can be leading, suggesting that runners must have a "this or that" type of inner experience; and third, runners themselves have presuppositions about their running experience, making it likely that reports will be about presuppositions rather than actual experience. This study will be the first within marathoning and inner experience literature in attempting to control for all three issues.
Graduate & Professional Student Research Forum  
*Social Science and Law*  
Platform Session D  
UNLV Student Union Room 213

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<th>Time</th>
<th>Speaker</th>
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<td>9:00 – 9:15am</td>
<td>Joseph Thomson</td>
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<td>9:15 – 9:30am</td>
<td>Colby Miyose</td>
<td>Department of Communication Studies</td>
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<td>Anaeita Biesiada</td>
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<td>Kevin Smith</td>
<td>Program of Marriage and Family Therapy</td>
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<td>10:30 – 10:45am</td>
<td>Jonathan Birds</td>
<td>School of Environmental Studies and Public Affairs</td>
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<td>10:45 – 11:00am</td>
<td>Craig Friedel and Keivan Roebuck</td>
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<td>Al Gourrier</td>
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“Evidence of Existence”: “Evidence of Occurrence”
Joseph Thomson, Department of History

The foundations of the production of various forms of art surround the creation of physical objects that mimic or replicate something else. Photography expanded upon a tradition rich in other well established forms; painting and sculpture as example. Photography has been tightly tied to the development of the technical process.

This presentation will focus on my theory born from parameters of the technical development of this form of expression by dividing images into two distinct categories “Evidence of Existence” or “Evidence of Occurrence”. Primary utilization of single images will be categorized as example for Evidence of Existence and multiple image sets will be structured into Evidence of Occurrence. Whereas the captured images not only record and depict the moment of their taking but reference all moments in between and in a said relationship between the two images being an example of an occurrence in a passage of time without reference to actual time but a reference to process, the process of change. That is to say change not measured in a plus or a minus specifically but measured in an alteration.

This framework will then be applied to photographic evidence surrounding a Las Vegas landmark; the Kiel Ranch. The results will solidify the true age of the adobe building which has historically been extensively incorrectly been dated to 1855.
Unrealistic Weeds of Love and Romance: The Korean Drama and the “Flower Boy” Genre  
Colby Miyose, Department Of Communication Studies

The concept of love has intrigued many social critics, and has led them to accuse media of perpetuating unrealistic notions of romance that are unattainable for a healthy and satisfying relationship. Unrealistic expectations of love and romance are a primary cause of relationship dissatisfaction among real couples. It is imperative to critically analyze media sources in order to gain knowledge of how to counter unhealthy notions of romance. Korean dramas (K-dramas) typically present a scenario in which strong mutual love and desire between two people come into conflict with existing sociocultural values. The kkonminam (Flower Boy) genre in particular, caters to young women, and focuses mainly on the romantic lives of young adults, making it a prime genre to analyze Korean portrayals of modern romance. The current study uses Galician’s myths of hegemonic portrayals of love and romance to see if common themes of Westernized “status quo” love can be detected in Korean dramas. The current study examines how love and romance is portrayed in Korean dramas, particularly in the Flower Boy genre, and does so by examining two K-dramas, Boys over Flowers and Flower Boy, Ramen Shop. This study adds to previous literature on hegemonic ideals of love and romance. Ultimately, this study examines ideas of romance in the media to learn what portrayals present themselves in K-dramas, a form of mass media targeted at a younger audience whose views and expectations on romantic love are still forming, and may be influenced by media depictions.
Access to Justice: A Look at Modelama Exports’ Human Rights Violations
Ani Biesiada and David Hales, School of Law

This report documents how the Indian textile company, Modelama’s Exports, violates labor laws without repercussion.

Method: Between December 2014 and January 2015, we conducted field research in Gurgaon, Haryana, India. We interviewed Modelama workers and Modelama’s union representative to identify what their experiences are/have been with Modelama. We interviewed a government official from the labor commissioner’s office to identify how the government addresses worker complaints. Finally, we consulted with an advocate for workers’ rights and reviewed the advocates’ filings.

Results: Modelama uses various tactics to block workers from unionizing to ensure the power disparity between management and workers, where workers are not empowered to assert their rights and bargain with management. In addition, when the United States company, GAP, uncovered human rights violations at Modelama GAP took remedial measures and fired Modelama. GAP’s exit cost approximately 3000 workers their jobs. Moreover, Modelama recruits government officials to engage in corrupt practices that inhibit the worker from recovering remedial relief. Ultimately, the law fails to create an implementation infrastructure that holds employers accountable for violations.

Conclusion: Understanding the economic justification of employers that participate in human rights abuses may help lawmakers anticipate and provide automatic monetary penalties for such actions. Additionally, identifying how U.S. companies past remedies have had a harmful effect may help U.S. companies preemptively screen Indian partners and implement remedial measures that do not adversely affect workers.
Client Selected Music Based Effects on Marital and Couples Therapy
Kevin Smith, Program of Marriage and Family Therapy

This study was designed to examine the interaction of music-based interventions in the therapeutic process of Martial and Couples Therapy. The use of pre-recorded music was found to be under researched within the literature and created a void within the knowledge that clinicians have about how music might enhance effectiveness of treatment. The inclusion of music in this process is not currently known, which lead to this study being conducted. Through a phenomenological lens, the awareness and understanding of how clients react and experience pre-recorded music during the therapeutic process, while still having a selection of options to preserve autonomy, was examined. Sample of participants used in this study were generated from clients seeking therapy at one of the university clinics, the Center for Individual, Couple and Family Counseling.

The findings point to highly effectiveness for consistent musical inclusion in therapy, if utilized with multiple musical selections (i.e. a client selected structure) and non-vocal music tracks. However, limitations such as a lack of saturation in themes around the participants’ experiences and data could mean incomplete perspective and greater themes of experience when allowing for greater length of time in testing. The study shows that much more research should be conducted using music as an adjunct to marriage and couple therapy.
YongJei Lee Braga and Clarke (2014) recently suggested that future high-risk crime place research should determine whether social disorganization theory offers insight and strategy for addressing criminal opportunities at specific places (Weisburd, Groff and Yang, 2012). In response, this paper begins by examining particular criminal event profiles, previously referred to as crime signatures (Eck and Madensen, 2009), within street segments. This paper is, in part, a replication of a study in Cincinnati where similar street segment analysis is underway. These profiles will determine whether (1) different crime types produce different profiles, (2) crime profiles appear to be a function of proprietary place management (the place itself) or proximal place influences (environment around the place) (Madensen and Eck, 2012), and (3) calls-for-service data provide similar results in Las Vegas, NV. We use data from Las Vegas to calculate the Simpson index (concentration measure) for the street segments in our data set to determine what crime concentrations look like at street segments. We discuss the findings within a previous crime hotspot framework and profile the addresses with the highest crime numbers. This study concludes that the Las Vegas concentration patterns were similar to the results found earlier in Cincinnati, even when using a different measure of crime (calls-for-service), and different event types yield similar patterns. Analysis of the worst (10 percent) street segments indicated that crime was attributable to multiple addresses (dispersed) as opposed to a single address (hotpoint). Profiles of the worst addresses indicated that hotspots mostly consisted of large places where numerous people come together.
“Assembly Line of Broken Fingers”: A Roadmap to Combating Occupational Health and Safety Hazards in the Manesar Auto Industrial Belt
Keivan Roebuck and Craig Friedel, School of Law

The Society of Labour and Development (â SLD), a human rights non-governmental organization, was made aware of significant violations of domestic and international laws in Manesar, India. We dug deeper into these violations by investigating and documenting occupational hazards in the auto industry of Manesar. Our methodology consisted of interviewing workers and government officials about the occupational hazards that they had either experienced or witnessed. We found that many factories simply cannot afford to fully comply with domestic and international occupational safety laws due to lack of capital. Because the government understands this, it allows the factories to operate with unsafe conditions. This results in a number of different injuries and health hazards, including amputation of fingers, inhaling of toxic fumes, and hot aluminum burns. Further, factories often circumvent reporting of accidents to government officials, which results in many accidents going underreported. After documenting these findings, we conducted research and pinned down the specific domestic and international laws that the factories are violating. We hope to provide these violations to SLD to advocate for change. Because the Indian judicial system has already proven inadequate to improve the conditions in the workplace, we are proposing alternative strategies for SLD’s advocacy efforts. In doing so, SLD will have to initiate a grassroots campaign and seek help from both employers and the Indian government.
Ronald Johnson's ARK and the Watts Towers of Simon Rodia
Amber Overholser, School of Environmental and Public Affairs

Despite being rich in resources, a growing population and open spaces, the Old West has often erupted into the “Fuming West” as interest groups and political leaders throughout the West demand that select lands within the region be turned over to their respective states for local control or private sale. During the late 1970s Sagebrush Rebellion this call for local control died out and remained fairly quiet until recently, when task forces have been created throughout the Western states in an attempt to once again demand federal turnover of public lands. Early information hints that the demands of these task forces will likely not be met with large scale policy change or a national discussion about the value and purpose of public lands.

An analysis of public land interest group formal and informal communications from the period surrounding the Sagebrush Rebellion will be compared against current interest group communications using Narrative Policy Framework (NPF). Using content analysis, the researcher will conduct an empirical study of content in terms of strategy and belief systems and will evaluate four features of the narrative; setting, characters, plot and moral. This theoretical framework will shed light on how the comparative use of science, economics and literary elements in the underlying narrative all contribute to the continuous reemergence of this policy issue. Ultimately, communications from both time periods will be examined to determine if and how narrative strategies have changed and if those changes have made this particular policy controversy more actionable.

Presentation pending: WSSA Conference, April 2015
Classification of Metropolitan Communities as a Function of Population and Job Shifts
Al Gourrier, School of Environmental and Public Affairs

Many urban centers across the country for decades now have experienced significant transition in demographics, population, composition of its workforce, and the industries that constitute its economic base. Existing academic literature has documented the shifts in population demographics in urban cities that coincide with shifts in jobs and employment opportunities for these communities. This study examines four metropolitan areas and seeks to develop a classification scheme of cities in terms of population and job growth. As a result of shifts in population and job growth, cities could be classified as winners and some cities classified as losers. For those communities that are classified as losers (problematic), the study examines the demographic characteristic. The purpose of the study is to be used for further development in policy for core urban cities.

Presentation: 2015 Midwest Political Science Association
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<th>Time</th>
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<td>Kelly Stout, Department of Criminal Justice</td>
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Domestic violence, also known as, intimate partner violence (IPV), has become an epidemic in the United States. According to the Center for Disease Control and prevention (CDC), about 24 women and men are victimized by an intimate partner each minute, equaling about 12 million victims every year (2012b).

In recent years, the public has become more aware of IPV situations. An increase in public service announcements has helped to inform the public and has brought these dangerous situations out from behind closed doors. In the age of technology, information is more easily distributed and exchanged which has also increased public awareness.

Police departments have also become more diligent about addressing IPV in homes. The implementation and use of lethality assessments in police departments around the country has led to more efficient police responses and increased the number of victims identified to be in lethal relationships (Campbell, 1995).

This research is intended to explore public knowledge about IPV and examine the public’s support for new police policies directing officer responses to IPV calls for service. Furthermore, this paper will seek to connect the relationship between public awareness and support of police actions.

Miracle in the Mojave: Miracle in the Mojave: Everyday Religion and the Sacralization of Urban Space
Tyler Schafer, Department of Sociology

In this paper I show how cultural orientations can influence practical considerations in grassroots organizations. I focus on the ways in which individuals infuse spirituality into quotidian, embodied practices at a Las Vegas community garden. The incorporation of religious or spiritual objects and practices in everyday settings helps individuals experience their religious worlds as real and accessible. Lived, embodied religion is not simply a matter of translating insights from religious authorities to one’s daily existence, but also, inversely, of framing everyday, embodied practices as spiritual. Based on data I collected over the course of 4 years of participant observation and 20 in-depth interviews, I illuminate ways in which spirituality aids in the persistence of a community garden. I also illustrate how groups create place-based myths that exercise influence over the character of the place, and in this case how perceptions that the garden is “God-powered” have led to an overreliance on supernatural causes of progress and prevented investment in infrastructure and outreach. This research sheds light on the importance of place in shaping the character of grassroots organizations. It also builds on existing knowledge of embodied spiritual practices in everyday life.

Presentation pending: Pacific Sociological Association in Long Beach, CA, April 4, 2015
Drive-by-Ethnography: The Bureaucratization of Ethnographic Research Methods
Nicholas Baxter and Christopher Conner, Department of Sociology

In this paper, we utilize our experiences as researchers on a short-term ethnographic project to address the development of short-term ethnography as a viable research method. The project was a grant funded and interdisciplinary research project aimed at using ethnographic methods to analyze issues of health, public transportation, and community in neighborhoods throughout the Las Vegas Metropolitan area. The ethnographic data was collected by a group of a dozen graduate researchers, including two of us, over roughly a ten week time period. This project provides a splendid example of a developing trend toward short-term ethnographic projects, particularly among institutional, governmental, and grant funded organizations. As such, we utilize this project and our experience to analyze short-term ethnographic methods. Specifically, we argue that while short-term ethnographic methods may provide some potential benefits it also possesses several methodological limitations. These limitations result from paradigmatic, epistemological, and political issues which arise from attempts to condense and short cut the rigors of traditional ethnographic methods. These limitations not only raise significant methodological concerns but if not dealt with have the potential to undermine the vary characteristics that make ethnography a powerful research method.

Presentation: Society for the Study of Symbolic Interaction Annual Conference, San Francisco CA, August 2014
Vreeland (2003) produced the novel finding that contrary to popular believe and research, countries participating in programs with the International Monetary Fund (IMF) do not show increased economic growth in the following years. The purpose of this study is to examine whether Vreeland's results hold (a) when more years are included, i.e. when the data set is extended beyond the year 2000, and (b) for other multilateral development banks (MLDB). The research question is thus, do MLDBs produce economic development in the respective aid-receiving countries? Methodologically, I first start by applying the approach of Vreeland (2003) to my data set. However, I see potential problems due to unobserved, heterogeneous, time-invariant as well as time-variant cross-sectional correlation. I propose using a common-factor error model. Also, public attention forced the IMF and World Bank to restructure their loan operations and include sustainability measures in the 1990s. If these measures improved international lending we would find a positive relationship after 1999. The results underline the robustness of Vreeland’s findings for the IMF while showing some evidence that other MLDBs actually cause growth. Finally, the 1990s only led to improvements in MLDBs that already had a positive impact on economic growth.
Love, Marriage, and Movies
Lauren Galloway and Erika Engstom, Department of Sociology

Despite divorce statistics and widely held truisms regarding the rate of divorce, relatively stable marriage and remarriage rates, in conjunction with the pro-marriage ideology that permeates Western culture, speak to the potency of beliefs in true love and, quite possibly, the desire to make expectations a reality (Byrne & Carr, 2005; Felberg & Kohen, 1976). Scholars in a range of academic disciplines have cited unrealistic expectations of sex, love, and romance as influential forces on satisfaction in romantic relationships. Often referred to as unreasonable (Baucom & Epstein, 1990), dysfunctional (Eidelson & Epstein, 1982), irrational (Epstein & Eidelson, 1981) or idealized (Segrin & Nabi, 1992), unrealistic expectations regarding relationships comprise myth endorsement and fantastic beliefs, attitudes, and behaviors about a range of romance-related subjects from courtship rituals to sexual encounters (Galician, 2004). The current study examines the association between consumption of media messages by way of movie viewing and genre preference and endorsement of ideals and expectations concerning romantic relationships. A survey of young adults found that viewing preference for both romantic comedies and dramas was significantly and positively correlated with idealized notions of faith that love conquers all, greater expectations for intimacy and endorsement of the eros love style. However, participants who frequently watched romantic movies did not endorse beliefs in sexual perfection, mindreading, or disagreement disallowance. Results suggest that more mythic romantic ideals may tend to supersede other relational demands.

Family Formation, Care and Financial Support and Gender Ideology of Fatherhood, from a Life Course Perspective
Rachel Macfarlane, Department of Sociology

Studies of gender ideology and the gendered division of labor have been at the center of work/family studies for long time. Recent changes in the economy and in the family have shifted the landscape of gendered behaviors and expectations of parental involvement, with women working much more and modest increases in fathers’ caring and domestic contributions. Strides in the gender revolution have been stalled since the 1990s, but younger generations and a modern economy demand more egalitarian relationships (Gerson 2002). Drawing on Life Course theory and methods I explore the conditions under which gender ideology and experiences of care shape one another to predict father involvement in direct care and financial support, and family formation among unmarried parents. I plan to analyze longitudinal data from the Fragile Families and Child Well Being Study which focuses on families in which parents are not married at the time of the birth of a child, giving particular insight to a variety of family formations, including some of the most vulnerable. Based on prior research, I expect to find a reciprocal relationship between involvement and ideology, with variations based on race, class, gender, employment and family formation (Zuo 2004, Vespa 2009), and despite recent shifts, still anticipate finding evidence of structural constraints that inhibit egalitarian family arrangements.

Presentation: Sociologists for Women in Society, February 21, 2015
Social Science Session E – Room 218
10:30 – 10:45am

Victim Offender Reconciliation Program in China
Qingting Hu, Hong Lu and Lei Ma, Department of Criminal Justice

China is undergoing rapid economic development and socio-economic transition in the past three decades. As Non-incarcerating punishments and sanctions can be equally effective or more effective, and also can be less costly for many non-violent offenders, Victim Offender Reconciliation has been practiced in many countries.

The current study examines the nature and extent of Victim Offender Reconciliation mechanism in current China, and to explore its benefits and challenges. Victim Offender Reconciliation has been adopted by the 2012 Criminal Procedure Law. This represents the first comprehensive establishment in China's Procedure Law of a criminal reconciliation system with Chinese characteristics. In mainland China, criminal reconciliation is the product of a spontaneous movement within the criminal justice system, including the police department. It was initially applied in cases of assault with minor injury. There are many practical benefits of Victim Offender Reconciliation, including improve judicial efficiency and cost effectiveness, protected victim’s interests, and improved reentry rate and reintegration without being exposed to other more serious offenders while incarcerated. It also helps to resolve social problems and interpersonal disputes. The study also analyzes the differences between Victim Offender Reconciliation in China and plea-bargains in the U.S. Finally, it explores the challenges in implementing Victim Offender Reconciliation.

Presentation: The American Society of Criminology Annual Conference, San Francisco, CA, November 19, 2014
Cultural Life of the Living Dead
Denise Cook, Department of Sociology

Zombies have become an explosive cultural phenomena which producers, retailers, and governmental agencies utilize to target consumers. The zombie myth pervades cultural narratives because it helps people distance themselves from criticizing actual social problems yet at the same time the zombie analogy can help to highlight potential social problems. Consumption culture is one of the primary zombie analogies, though others include; xenophobic interactions with people who do not resemble us, unquestioning acceptance of potentially harmful governmental policies like the Patriot Act; a lack of disaster preparedness; mindless attention to technologies like cell phones and ultimately a loss of what makes us human. Zombies represent soulless creatures that were formerly human. If the soul is what makes us human, zombie life is a separation from our humanity. There is a risk that we may become like the zombie if we advance towards what many people fear is our future. If society follows the trajectory conceptualized by many and illustrated in zombie fiction, we become human beings who are so disconnected from others due to consumption, technologically based stimuli or governmental regulation; our humanity will cease to exist. Zombies have been around and will probably continue to be around for quite some time because zombies defy death, one of our challenges is to avoid becoming like the zombie and retain our connection to humanity.

Presentation: American Sociological Association Annual Meeting, 2014
Economic Perceptions and Presidential Trust in the Caucasus
Rafael Oganesyan, Department of Political Sciences

Economic voting theory posits that individuals hold the incumbent responsible for stewardship of the economy. A plethora of empirical works have demonstrated the relationship throughout the advanced industrial world. Recently, scholarship has shifted its focus to the application of economic voting in the developing world. Unfortunately, scholarly attention has overlooked the Caucasus region all together. Relying on pooled waves of the Caucasus Barometer dataset, I analyze the relationship between economic perceptions and trust in the president within Armenia, Azerbaijan, and Georgia. Cross-national results suggest that individuals in the Caucasus do take the economy into consideration when evaluating the incumbent. Specifically, individuals demonstrated prospective, egotropic perceptions. In other words, as one’s pocketbook widens, financially, they are more likely to place trust in the incumbent president.

Presentation: Midwest Political Science Association Conference in Chicago, IL, April 17, 2015
A Candidate by Any Other Name: Investigating the Use of Nicknames as Heuristics
Kate Eugenis and Jonathan Bradley, Department of Political Sciences

Name recognition is crucial to winning elections in representative institutions: But what is in a name? While most keep their birth names, some chose to self-identify through a modification of their original name or a nickname. This decision influences the perceptions of others, with Barry/Barack Obama serving as an example. In the case of politicians, does the use of a nickname imply certain characteristics about the candidate to voters? Are there certain voters and districts that are more likely to elect those with a shorter, informal name regardless of party affiliation? We believe there are measurable patterns in how candidates chose to self-identify that are linked to the political ideology, region, and urbanization of their constituencies. We also believe these patterns will hold consistent in both the United States and Canada. Linguistic theory and political science are rarely combined, particularly when using data from legislative and gubernatorial elections, but we believe the comingling of these two disciplines will produce unique conclusions regarding voter heuristics and political psychology. This study also adds to work concerning the strategic behavior of legislators seeking election with implications for the ways future politicians will self-identify to certain constituencies.

Graduate & Professional Student Research Forum
Social Science
Platform Session F
UNLV Student Union Room 219

8:30 – 8:45am Nathan Henceroth, Department of Political Science

8:45 – 9:00am Allison Sahl, Department of Sociology

9:00 – 9:15am Mari Sakiyama, Department of Criminal Justice

9:15 – 9:30am Christina Parreira, Department of Sociology

9:30 – 9:45am Erika Masaki, Department of Political Science

9:45 – 10:00am Andrea Dassopoulous, Department of Sociology

10:00 – 10:30am Break

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

10:45 – 11:00am Jennifer Whitmer, Department of Sociology

11:00 – 11:15am Haftor Erlingsson, Department of Political Science

11:15 – 11:30am Michael Trevathan, Department of Political Science
Do EU Structural Funds Have an Effect on French EP Elections?
Nathan Henceroth, Department of Political Science

Are parties affected by EU structural spending? It is hypothesized that pro-EU parties will receive electoral benefits from regions receiving more EU structural funds, while anti-EU parties will not receive any electoral benefits related to higher per capita EU structural fund disbursements. While parties will seek to steer EU money in their national direction (Kemmerling and Bodenstein 2006), nothing in the literature examines how parties are affected by increased per capita EU structural spending. Moreover, we hypothesize that the vote share for left parties will be most sensitive to EU structural spending. The literature supports the case that there are differences between the left and the right (Anderson and Hecht 2012; Dassonneville and Lewis-Beck 2013), and this study seeks to demonstrate that this is the case with EU structural spending at the French regional level. To test our hypothesis, we have preliminary results from the 2014 EP elections indicating that Parti Socialiste (PS) vote share is positively affected by higher levels of per capita EU structural fund disbursements. There is currently very little research concerning voter preference and EU structural spending, and we seek to remedy this unexplored phenomenon.

Presentation pending: Midwest Political Science Association, Annual Conference, Chicago IL, April 16-19 2015
Housework and Employment: Trends Before, During, and After the 2007 U.S. Economic Recession
Allison Sahl, Department of Sociology

As part of a larger, ongoing project, the goal of this research is to examine gender differences in time spent on core housework tasks before, during, and after the 2007 U.S. economic recession. Previous research suggests that women perform more housework than men. Explanations for these differences fall under three major perspectives: relative resources, time availability, and gender theories. According to the relative resource perspective, the partner contributing the most resources (i.e., money) can bargain out of domestic tasks. The time availability perspective suggests that the partner that performs the most unpaid household labor is the partner with the most time available for these tasks. The third major perspective suggests that men and women are socialized into different roles; males are socialized as paid market contributors, while females are socialized as domestic contributors. Research has found mixed support for these perspectives. Using The American Time Use Survey, which is sponsored by The Bureau of Labor Statistics and conducted through the U.S. Census Bureau, I hope to test these perspectives; specifically time availability. This study provides a unique opportunity to analyze contributions during a time of major economic disruption, the 2007 economic recession, as during this time more unemployment was experienced. Despite employment status differences, findings suggest women still perform more core housework tasks across all time periods.

Presentation: American Sociological Association, August 2014
Big Hover or Big Brother? Public Attitudes on Using Drone Technology for Visual Surveillance Activities
Mari Sakiyama, Joel D. Lieberman and Terry Miethe, Department of Criminal Justice

This paper presents results from a national survey that was administered to measure public perceptions about drone technology and its domestic use. Specifically, the authors examined the level of public tolerance for drone usage by law enforcement agencies and the level of confidence in those agencies, as well as in the security of data gathered by drones. These public attitudes toward visual surveillance technology are assessed in a variety of private and public contexts. The implications of our findings for public policy and law enforcement practices are discussed.

The current study extends this line of research and explores the public perceptions about drone technology within the U.S. context. The national survey will be administered using the Amazon Mechanical Turk (MTurk) to measure different levels of public attitudes. The investigators are currently in a process of creating items for the survey questionnaires. The findings will be presented as a paper presentation at the annual meeting of the American Society of Criminology (the acceptance result is not going to be notified to the PI until the May 31st). I will be responsible for the item creating, coding, and data analyzing in addition to creating and presenting the presentation for this academic conference.

Given the necessity of public acceptance for any effective public police, it is important to collect comprehensive data on public attitudes about various aspects of technology, concerns with its application in both public and private domains, and its general acceptance within specific types of public/private contexts.

Presentation: American Society of Criminology, November 18-21, 2014
“Our Bedrooms Are Our Stage”: Selling Sex and Intimacy in a Nevada Brothel
Christina Parreira, Department of Sociology

This article draws upon, and contributes to, the scholarship on commercial sex and sociology of the body by examining how 12 prostitutes in a licensed Nevada brothel discuss aspects of their work. Until recent years, debates on the body and labor of the prostitute have been largely theoretical. However, a growing number of scholars have begun examining how sex workers discuss their work bodies (Price, 2010; Brents & Jackson, 2013).

My data is the result of an eight month qualitative study over the course of 6 trips to a legal brothel in Amargosa Valley, Nevada. I spent 36 days total living and working as a prostitute in the brothel. I obtained approval from the University of Nevada, Las Vegas’ Institutional Review Board to conduct interviews and observations. I examine how prostitutes perform body labor, conceptualize the body as a resource, and cope with the physical and mental demands of sex work.

In my sample, I found that the workers who practice holistically and are less influenced by Western mind/body dualism are more likely to achieve orgasm with clients. Workers who do not orgasm are more likely to report mental boundaries and disconnects between mind and body. However, this division seemed to break on age; the majority of workers who are able to achieve orgasm are over age 40. Additionally, those who practice holistically generally had higher socioeconomic statuses. Implications of stigma, shame, and the concept of “dirty work” and “spoiled identity” (Hughes, 1958; Goffman, 1963; Ashforth & Kreiner, 1999) are discussed in relation to age, socioeconomic status, and work enjoyment.

Presentations: SSSP (Society for the Study of Social Problems) Conference, August 2014
International Human Trafficking, Prostitution, and Sex Work Conference, September 2014
Southeast Asia’s Environmental Policy: Perceptions and Realities
Erika Masaki, Political Science

Within the studies of Southeast Asian regionalism, particularly in the discussions about the Association of Southeast Asian Nations (ASEAN) and the “ASEAN Way,” scholars often tend to overlook the role of the environment in such an institutional arrangement. The focus of regional cooperation in Southeast Asia has predominantly been on economic and security concerns that have led to many agreements and treaties. Consequently, the limited research on regional environmental cooperation in Southeast Asia often notes that while economic and political ties have deepened within the region, environmental cooperation has been substantially deficient and lagging.

However, few scholars have truly investigated the empirical evidence for these claims. Consequently, this paper uses a mixed-methods approach to evaluate Southeast Asia’s participation in regional environmental regimes and agreements. Examining ASEAN’s response to biodiversity concerns in the region, it compares Southeast Asia’s political environmental responses to those of other regions and the world. The counterintuitive findings may suggest that despite Southeast Asia’s bad reputation for a lack of environmental concern, the region has not only made significant progress in the areas of environmental cooperation and integration, but also, despite the particularly difficult challenges that the region faces, Southeast Asia is working toward a more integrated environmental region.

Presentation: ISA-West September 26-27, 2014
Whose Community? Gentrification and Media Representation in Downtown Las Vegas
Andrea Dassopulos, Department of Sociology

This paper explores the role that local media has played in framing the redevelopment of downtown Las Vegas since 2008. Downtown Las Vegas is in the midst of rapid development and gentrification, spearheaded by investment groups City of Las Vegas Redevelopment Agency and the Downtown Project (DTP). Investment in the area has changed the landscape of downtown Las Vegas, particularly the Fremont East area, which has long had a reputation for high crime and poverty. Numerous weekly motels, small markets, and casinos geared toward locals have been closed and replaced with businesses geared toward a burgeoning creative class. The vision of DTP is to build a dense area of entertainment, art, and co-working spaces. DTP’s public image is cultivated using buzzwords like “community” and “collisions.” DTP has changed both the physical and cultural character of the area. Using “community” to describe the changes proliferates in alternative weekly magazines and blogs as a way to frame the changes and define the area. Throughout the process, development has been positively framed as making the area safer and bringing more people downtown, with a rare voice decrying gentrification. I focus on the use of the word “community” in the rhetoric of the DTP and show how the media becomes a booster for DTP by drawing on existing perceptions of Las Vegas as a transient city lacking community cohesion. Community, however, is not an inclusive term, as the existing and longstanding community of Fremont east is noticeably absent from the public discourse.

Probation and Parole Officer Attitudes toward Evidence-Based Practices: Application and Modification of the Evidence-Based Practices Attitudes Scale (EBPAS)
Breanna Boppre, Department of Criminal Justice

The research and literature referred to as “evidence-based practice” (EBP) holds tremendous potential for improving the outcomes of community corrections. The implementation of EBP requires support from staff at all levels of an organization. However, correctional officers’ attitudes toward organizational change and EBPs have not been well studied. The current study applies the Evidence-Based Practice Attitude Scale (EBPAS), as developed by Aarons (2004), to measure community corrections officers’ readiness toward the use and implementation of evidence-based practices. Officers’ attitudes were also examined in relation to a set of individual differences and organizational characteristics. The current study modified the EBPAS to measure officers’ attitudes toward the use of science in community corrections, as well.

Keywords: evidence-based practices, dissemination, attitudes, probation and parole, community supervision, organizational behavior.

Presentation: The American Society of Criminology, San Francisco, CA, 2014
Producing Authenticity: Personal Style Bloggers, Branding, and Cultural Intermediaries
Jennifer Whitmer, Department of Sociology

This paper contributes to theoretical reexaminations of Bourdieu’s concept of cultural intermediaries by locating the production and consumption of symbolic value within the context of brand culture. Drawing on interviews, qualitative content analysis, and participant observation, I explore the role of personal style bloggers as cultural intermediaries, and the impact of this role on bloggers’ processes of self-presentation. I use Cronin’s (2004) conceptualization of multiple regimes of mediation to explore the multidirectional interplay between blogger, audience, and corporate sponsors in the production and consumption of symbolic value. Personal style bloggers brand themselves by showcasing their own personal taste and style for an audience of unknown others. As fashion outsiders, personal style bloggers largely lack institutional legitimacy, but rather claim legitimacy through displays of “natural” taste, style, and personality, which the audience perceives as authentic to the blogger. When brands collaborate with bloggers, they are trying to tap into bloggers’ lifestyle, readership, and claims to authenticity, while the bloggers themselves are trying to construct an image of living a fashionable lifestyle. However, for bloggers to successfully create value, they must first resonate with audience expectations regarding bloggers’ authentic presentation of self, which may not align with bloggers’ subjective feeling of being true to self.

Presentation: American Sociological Association
Expatriate Voting Rights in Latin America and the Caribbean: The Influence of Remittances, Globalization, and Partisan Control
Hafthor Erlingsson and John Tuman, Department of Political Science

This paper seeks to explain the decision of governments in Latin American and the Caribbean to grant expatriates voting rights in their country-of-origin. Focusing on 27 Latin American and Caribbean countries for the period of 1980 to 2012, the study investigates the effects of remittances, globalization, left party control of the executive branch, and several other controls on the likelihood that governments will grant voting rights for expatriates. The statistical models are estimated with Cox proportional hazard regression. The results add to the literature on migration by demonstrating that remittance flows have an effect on the likelihood of governments adopting expatriate voting rights, although the influence of remittances is non-linear. Partisan control is also shown to be important, although the level of wealth, globalization, and other controls were not found to be significant.

Post-Cold War Era Ethnic Civil Wars
Michael Trevathan, Department of Political Science

In the post-Cold War era ethnic civil wars and conflicts have become the most prominent forms of violent conflict in the world (Wimmer 2004, 1). Previous studies have focused on how material factors, natural resources, socially-constructed identities, and primordial cleavages have shaped conflict between ethnic groups. One intriguing area of study in this field is the role played by natural resources, such as oil, in the development and duration of ethnic civil wars. As alluring as this area of study is, the literature remains somewhat ambivalent about the role that the natural resource of water plays in the onset of ethnic civil wars. This paper is an exploratory endeavor designed to create a theoretical framework that empirically tests the impact of water scarcity as a cause for the onset of ethnic civil wars.

Presentation: International Studies Association Annual Conference 2015
Graduate & Professional Student Research Forum

Education
Platform Session A
UNLV Student Union Room 222

8:30 – 8:45am  Elif Adibelli and Refika Turgut, Department of Teaching & Learning

8:45 – 9:00am  Amy Beth Adkins, Department of Teaching & Learning

9:00 – 9:15am  Brittnie Watkins, Department of Educational Psychology & Higher Education

9:15 – 9:30am  Laura Decker, Department of Teaching & Learning

9:30 – 9:45am  Alexandra Dema, Department of Teaching & Learning

9:45 – 10:00am  Samantha Riggleman, Department of Educational & Clinical Studies

10:00 – 10:15am  Break

10:15 – 10:30am  Lina DeVaul, Department of Teaching & Learning

10:30 – 10:45am  Mehmet Dulger, Department of Teaching & Learning

10:45 – 11:00am  Caitlin Saladino, Department of Educational Psychology & Higher Education

11:00 – 11:15am  Christina Santoyo, Department of Teaching & Learning

11:15 – 11:30am  Bob Walker, Department of Teaching & Learning
Factors for Changing Preservice Teachers’ (PSTs) Knowledge, Attitudes, and Beliefs regarding Second Language Acquisition (SLA) and English Language Learners (ELLs)
Elif Adibelli and Refika Turgut, Department of Teaching & Learning

This mixed-method study aimed to investigate the following research questions:

(1) How did the preservice teachers’ (PSTs) change their knowledge, beliefs, and attitudes regarding second language acquisition (SLA) and working with English Language Learners (ELLs) as a result of participation in a semester-long SLA course?

(2) Which factors did PSTs perceived most influential in improving their knowledge, beliefs, and attitudes regarding SLA and working with ELLs?

A total of 36 PSTs who enrolled in the Teaching English as a Second Language (TESL) course participated in the study. Data collected from pre- and post-course surveys, reflective journals, and course evaluations were analyzed using a mixed-methods sequential explanatory design (Creswell, Plano Clark, Gutmann, & Hanson, 2003). First, data from pre-post surveys were analyzed using two Wilcoxon Signed Ranks tests (nonparametric equivalent of a paired sample t-test) to measure quantitative changes in PSTs’ attitudes towards, and knowledge and beliefs about ELLs. Second, qualitative data analysis helped explain, or elaborate on, the obtained quantitative results. Quantitative findings revealed significant changes in PSTs’ knowledge, attitudes and beliefs regarding ELLs and SLA. Qualitative findings revealed the impacts of teacher characteristics (the course instructor’s being a nonnative speaker of the English language) and the five instructional activities (mini-lessons in foreign languages, case-studies, group discussions on myths about ELLs and SLA, interviewing an ELL student, and awareness-raising readings and videos) on PSTs’ knowledge, attitudes and/or beliefs.

Lessons Learned about Preschool Children’s Use of iPads
Amy Adkins, Department of Teaching and Learning

In this presentation, lessons learned about the implementation of iPads in a preschool setting will be shared. Early childhood mathematics apps will be discussed, as well as the different ways to integrate iPads to maximize learning. The iPad apps provided the context for the math content which included subtilizing, ordering, counting, identifying numbers, comparing, and place value.

There are limited empirically based guidelines about the implementation of technology for effective learning. This study provides insight about the use of iPads in an early childhood mathematics setting.

The goal of the present study is to test a research-based number sense curriculum on a population of low-income preschoolers to improve their number sense knowledge. One-hundred preschoolers from a large Head Start center in Nevada were either randomly assigned to Math Shelf, or best reviewed preschool math apps.

The design used quantitative and qualitative research methods. Students took a pre and post test to measure growth in number sense. Interviews with teachers, field notes, and observations provided details about best execution and challenges. Children in both groups played three days a week, for six weeks, in 10 minute sessions.

Results showed that iPads should be implemented in a quiet place with an appropriately cognitive demanding app to help maximize learning. Both groups showed improvement in number sense. However, children who used Math Shelf produced six months more number sense learning than children who played the most popular apps.

Presentations: Association of Mathematics Teacher Educators Nineteenth Annual Conference, Orlando FL, February 2015
Reducing Court-Related Stress through Court Education: Examining Child Witnesses, Parents and Attorneys
Brittnie Watkins, Department of Educational Psychology and Higher Education

Child witness research first became highly prominent in the 1980s, when reports of child abuse rose substantially, requiring children to give evidence more often. Although children are testifying more often, many children associate testimony with fear or anxiety and are re-traumatized by court experiences. Children’s fear of the courtroom can contribute to negative consequences for memory outcomes. Moreover, juries, attorneys and parents often doubt whether children have the ability to testify accurately.

Court education presents a useful approach to addressing child witness anxiety, in hopes of promoting accurate memory recall during testimony. The current study uses a pretest-posttest design to evaluate whether Kids’ Court School (KCS), a curriculum-based, court education program, reduces court-related stress in child witnesses in Clark County, Nevada. In addition, attorneys and parents perceptions of the child witnesses’ stress are evaluated.

Presentation: American Psychological Association, August 11, 2014
Teaching Positive Images of Disability in Native American Young Adult Literature
Laura Decker, Department of Teaching and Learning

The field of disability studies, including disability literature, has expanded as educators seek to improve their students’ critical thinking and reading skills, as well as to introduce issues of disability. Leonard Davis’ “Constructing Normalcy,” David T. Mitchell and Sharon L. Snyder’s notion of the disability metaphor narrative and Rosemarie Garland-Thomson’s politics of staring all serve as important theoretical frameworks for educators to use in teaching images of disability in literature.

However, when teaching Native American literature in primary and secondary classrooms, the dominant paradigm even insofar as it applies to and defines disability can itself be disabling to native authors and narratives. Siobhan Senier and Clare Barker recently called for a decolonization of disability literature: “to commit to a form of disability studies praxis that refuses to impose non-indigenous frameworks of health or disability upon native communities, whether these might be medical or more progressive social models.” Some work has been done previously on images of disability within native contexts; however, most of this work has been focused on adult literature.

In this paper I look at Native American young adult literature by applying indigenous frameworks of health and disability, as well as to catalog the positive images of characters with disabilities that are so important to promote in K-12 classrooms. I use Michael Dorris' "Sees Behind Trees," Jacqueline Guest’s "Triple Threat," and Louise Erdrich's "The Round House," and I include classroom strategies for teachers.

Presentation: Native American Literature Symposium, March 2015
The Impact of Sociocultural Practices on International Graduate Students’ Teacher Identity Development
Alexandra Dema, Refika Turgut and Shaoan Zhang, Department of Teaching & Learning

Identity issues play an essential role in the adaptation and development of international graduate assistants (IGAs). This multiple-case study examined the perspectives of four IGAs in a U.S. institution regarding the impact of sociocultural practices, in which they engage, on their teacher identity development and how these practices affect their teaching and positioning in the classroom. In order to explore professional identity development, we drew on sociocultural theory perspectives. The data collection tools included one-on-one interviews, demographic data sheets, surveys, and follow-up emails. The data were collected in summer and fall of 2013. The findings indicated that IGAs’ teacher identities developed over time and were affected by their linguistic, educational, and cultural backgrounds as well as teaching experiences. The data also revealed that the participants’ teacher identities were shaped as a result of engaging in the following three types of sociocultural practices: performing professional duties in the classes that they taught; participation in professional communities (mentor-student dyads; coursework; and communities of peers); and engaging in informal practices involving family and friends and extracurricular activities with students. Since this is an underexplored topic, this research contributes to the fields of teacher education and TESOL by raising awareness of IGSs as important members of educational communities in the U.S. academia. The study also helps start a discussion between IGSs and university administrators and faculty on IGSs’ specific needs and challenges as educators and ways to provide better opportunities and support to such individuals in order to improve the quality of their teaching.

Presentation: Association of Teacher Educators (ATE), Niagara Falls, NY, August 1 – 5, 2014
Facilitating Inclusion of Diverse Students with EBD through Cooperation Games
Samantha Riggleman and Teri Marx, Department of Educational and Clinical Studies

We will teach practitioners how to facilitate peer-mediated cooperation games in the classroom setting to promote the inclusion of culturally and linguistically diverse learners with emotional/behavioral disorders. The results of a recent investigation into the use of cooperation games with this population will also be presented.

Presentation: CEC (Council for Exceptional Children) April 10, 2015
Lessons Learned about Preschool Children's Use of iPads
Lina DeVaul, Department of Teaching and Learning

This presentation will share with attendees an in-depth look at HeadStart students learning number sense concepts on the iPad with games-based apps. Preschool number sense predicts math and academic achievement through age 15 better than any other readiness assessment. Meanwhile, low-income preschoolers are 1-2 years behind their middle- and high-income peers in number sense when they enter Kindergarten. This study filled in the research gap in improving low-income family kids' number sense by using iPad interactive game. 100 students in one HeadStart in Henderson participated in this study. Students were randomly assigned into treatment group and comparison group evenly. Treatment group used researcher designed iPad math APP. Comparison group used three popular math APPs in the market. The study was six weeks long. Student played APPs 3 days per week. The session was 10-minutes each day. Pretest/posttest number sense assessment and t-test were applied to evaluate students’ improvement. It was found that this researcher designed math APP improved students’ performance in number sense. Challenges and lessons learned during this study will be shared in the presentation.

Presentation: 2015 Annual AMTE Conference---The Nineteenth Annual Conference of the Association of Mathematics Teacher Educators (AMTE), February 12, 2015
Assessing Validity of Multiple Choice Questions in Measuring Fourth Graders Ability to Interpret Graphs about Motion and Temperature
Mehmet Dulger and Hasan Deniz, Department of Teaching and Learning

The purpose of this paper was to assess the validity of multiple-choice questions in measuring fourth graders’ ability to interpret graphs about motion and temperature. We administered 6 multiple-choice questions about motion and temperature to 28 fourth grade students after they learned about motion and temperature graphs. We also interviewed all 28 students and asked them to explain their answers. We found that students can make correct explanations for a question even if they answer the question incorrectly. Similarly, we found that students may not make correct explanations for a question even if they selected the correct choice for that question.

Presentation: Association for Science Teacher Education, Portland, OR, January 8, 2015
Community College Transfer in Southern Nevada: An Investigation of Policy and Outcomes  
Caitlin Saladino, Department of Educational Psychology & Higher Education

The number of college students that begin their post-secondary careers at community colleges is at an all-time high (Gard, Paton, & Gosselin, 2012). Therefore, it is important that transfer policies between 2- and 4-year institutions are designed to ease the transition of community college students. In Southern Nevada, The Nevada System of Higher Education (NSHE) governs a university system that includes the College of Southern Nevada (CSN), Nevada State College (NSC) and the University of Nevada, Las Vegas (UNLV). The purpose of this study is to investigate the landscape of transfer in Southern Nevada, and specifically those barriers that may hinder student transfer from CSN to UNLV. Early findings in the UNLV portrait of student data reveal that 3,405 new undergraduate transfer students were admitted to the university in fall 2013, but only 2,339 actually enrolled. In other words, the transfer mechanism in Southern Nevada left 1,066 students unaccounted for. This project focuses on the stated transfer policies that are currently implemented through the NSHE bylaws. By observing these policies from a policy analyst perspective, researchers can begin to understand why transfer barriers exist in Southern Nevada. My analysis reveals misalignment of policy goals because the policies target the problem at the institutional level, rather than the student level. I conclude by offering suggestions for improvement to the NSHE transfer policies; ultimately, transfer policies must be crafted with students in mind, to account for the unique barriers they face as they navigate the systemic bureaucracy of two or more institutions.
A Case Study of Social Justice Education in a General Methods Course
Christina Santoyo, Shaoan Zhang and Danny Murphy, Department of Teaching & Learning

The current diversity in American schools requires integration of social justice perspectives into teacher preparation. This case study of four teacher candidates reviews the use of social justice in a secondary education methods course that is taught concurrently with the teacher candidates’ practicum field experience. The goals of this research are to determine to what extent teacher candidates develop social justice dispositions and knowledge through enrollment in a methods course and what opportunities teacher candidates have for developing a cultural teacher identity within a school-based setting. Viewed through the conceptual lens of social identity development theory and the teacher education (InTASC) standards’ required dispositions and knowledge of social justice, several themes and subthemes were identified. Theme one, dispositions about social justice integration, examined teacher candidates’ dispositions for understanding diversity and their exploration of students’ diverse strengths and needs. Theme two, knowledge of social justice integration, examined special education students’ needs in lesson planning and the teacher candidates’ ability to address the needs and strengths of culturally diverse students. Theme three, learning opportunities in the field experience, examined how teacher candidates learn to teach student-centered lessons that integrate social justice. The findings suggest that teacher candidates develop social justice teacher identities in the university-based setting, but because of a lack of support from mentor teachers in the school-based setting, they do not develop identities as social justice teachers.

Presentation: Hawaii International Conference on Education, January 5-8, 2015
Black Male Education and Employment Opportunities
Bob Walker, Department of Teaching and Learning

The purpose of this study is to determine the current status of education's role in African American males' employment opportunities. For more than fifty years, the trajectory of African American male education and employment has been a negative one. This study will attempt to document, in their own voice, African American male lived experiences in an effort to understand their perspectives on education and job opportunities at various education levels.

This study will help fill that gap in the literature by interviewing Black males from six levels of education: high school dropout, high school graduate, community college graduate, college graduate – bachelors’ degree, Master's degree graduate, and a doctoral graduate.

The goal is to answer the primary research question. Does educational attainment influence employment opportunities for African American males? If so, in what way(s)? The data gathered will be viewed through the theoretical frameworks of Critical Race Theory and Stereotype Threat in the context of the 1965 Moynihan Report. This is a qualitative study using the case study method interviewing at least six participants which makes it a multi-case study.

This study is in the proposal stage so there are no results or conclusions, but I do have three very interesting chapters completed which give context to the background of the problem Black males have including a brief history of Black men in America, a review of the current literature Black male problems, and the proposed methodology and timeline.
Graduate & Professional Student Research Forum

Science and Engineering

Poster Session A

UNLV Student Union Ballroom

Posters 1 – 5: Judging at 8:45 – 10:00am

1. Amro Abdalla, Department of Chemistry

2. Iani Batilov, Department of Civil and Environmental Engineering and Construction

3. Courtney Bartlett, Department of Geoscience

4. Sungchul Lee, Department of Computer Science

5. Daniel Mast, Department of Chemistry

10:00 – 10:15am Break

Posters 6 – 10: Judging at 10:15 – 11:30am

6. Syeda Saria Bukhary, Department of Civil and Environmental Engineering and Construction

7. Melisa Bishop, Department of Geoscience

8. Samad Gharehdaghimollahajiliao, Department of Mechanical Engineering

9. Ali Pour Yazdanpanah, Department of Electrical and Computer Engineering

10. Robabeh Jazaei, Department of Civil and Environmental Engineering and Construction
1. The Role of Insulin like Growth Factor 1 Receptor in Modulation Plasma Membrane Lipid Rafts through Affecting Acid Sphingomyelinase in Both Neural and Mesenchymal Stem Cells Development
Amro Abdalla and Hong Sun, Department of Chemistry

Recent advances in stem cell research elucidate the possibility of use adult stem cells to treat some of the most severe pathological conditions such as autoimmune and neurodegenerative disorders. The overall goal of research project is to investigate the effects of receptor tyrosine kinase, Insulin like growth factor 1 receptor (IGF-1R) on neural and mesenchymal stem cell development. My research project aims to study the influences IGF-1R on stem cell proliferation and differentiation. Based on previous reports, IGF-1R plays an important role in stem cell development. IGF-1R was proposed to induce development of hippocampus dentate gyrus during postnatal and embryonic periods. Moreover IGF-1R was shown to exert a critical role in bone development through modulation of mesenchymal stem cell development. In my project we target an enzyme called acid sphingomyelinase (ASM) which is responsible for catalyzing the breakdown of sphingomyelin lipid which is a part of plasma membrane. We hypothesize that IGF-1R plays a critical role in stem growth and differentiation through modulation of sphingomyelin lipid rafts consequently affecting stem cell growth and development. During this time, I will be using both IGF-1R inhibitors and such as desipramine and lentivirus to test the effects of IGF-1R on neural and mesenchymal stem cells development. To achieve this goal, I will be using biochemical approaches such as immunoblotting and immunostaining, to further investigate IGF-1R effects on stem cell development.
2. Sulfate Resistance of Nano Silica and Micro Silica Contained Mortars
Iani Batilov, Nader Ghafoori and Meysam Najimi, Department of Civil and Environmental Engineering and Construction

High concentrations of sulfates in soils, sea water and ground water are examples of hostile environments that can deteriorate concrete and lead to costly repairs or replacement. Sulfate attack is a slow acting deteriorative phenomenon that can result in progressive failure of concrete. The scope of this research is a three phase series of tests, where mortar samples with progressive nano Silica (nS), Silica Fume (SF), and combined nS/SF cement replacement are subjected to sodium sulfate solution to observe effects of chemical and physical sulfate attack. The goals are to identify and experimentally show potential benefits of nS (an industrial waste byproduct) in concrete sulfate resistance, measure if significant improvements are observed over the more widely implemented silica fume replacement, and ultimately develop industry recommendations for beneficial nS application in high sulfate environments. Mortar bar expansion, compressive strength of cubes and cylinders, mass loss, water absorption and porosity were measured. Experimental evidence showed that both paste permeability and chemical resistance of the binder contribute to the effectiveness of a mortar to resist chemical sulfate attack. Permeability, which is dependent on porosity, binder fineness, binder dispersion, water/binder ratio, and compaction, and chemical resistance of binders, cannot easily be isolated based on regional material availability and specific sulfate conditions. When formulating a sulfate resistant mix design, either the paste permeability or the chemical resistance of the binder may dictate the controlling parameters for acceptable w/cm ratios, binders, aggregate, and admixtures used.

Courtney L. Bartlett, Elisabeth M. Hausrath and Christopher T. Adcock, Department of Geoscience

Phosphate is essential for life; it is required to stabilize RNA, DNA as well as phospholipid membranes [1]. The dominant phosphate-bearing minerals found in Martian meteorites are merrillite and chlorapatite. When phosphate-containing minerals dissolve, the phosphate contained within the mineral becomes available for use by organisms, or prebiotic reactions. Therefore, the study of how minerals release phosphate is essential for not only determining how much phosphate could be available, but what influences its release.

The presence of organic compounds may have played an important role in the reactions leading to life on Earth and/or Mars. The environments in which phosphate release would have been most relevant to potential early martian life likely did not contain solely inorganic solutions and phosphate mineral surfaces, but also likely contained abundant organic matter delivered by carbonaceous chondrites and interplanetary dust particles [2]. These organic compounds may also have played an important role in phosphate mobility in early, potentially habitable, martian environments. Results of this study will provide further understanding of the dissolution of the dominant Mars-relevant phosphate-containing minerals in the presence of organic compounds. This has important implications for the possible habitability of Mars. Understanding phosphate mobility in the presence of prebiotic organic compounds will help better interpret the potential habitability of early martian environments.


4. **Performance Testing of Web-Based Data Visualization**  
Sungchul Lee, Ju-Yeon Jo and Yoohwan Kim, Department of Computer Science

Many scientific applications generate massive data that requires visualization. For example, the Nevada Solar Energy-Water-Environmental Nexus project has been generating a large amount of environmental monitoring data in textual format. As the data is available on the web, a web-based visualization tool is desirable for the project rather than a standalone tool. This research analyzes the processing mechanisms of four popular web-based data visualization tools, that is, Google Charts, Flex, OFC, D3, and compares their performances. A standalone visualization tool, JfreeChart, have been also used for comparison. The processing times have been divided into three segments, layout time, data transformation time, and rendering time, and separately measured. The actual temperature data from the Nevada Nexus project has been used for testing in different scales ranging from 100 to 100,000 data points. The result shows that each visualization tool has its own ideal environment.

Presentation: Systems, Man and Cybernetics (SMC), 2014 IEEE International Conference, October 5 – 8, 2014
5. **Equation of State for Technetium from X-Ray Diffraction and First-Principle Calculations**

Daniel S. Mast, Eunja Kim, Emily Siska, Frederic Poineau, Kenneth R. Czerwinski, Philippe F. Weck, Barbara Lavina, and Paul M. Forster, Department of Chemistry

The study of materials under extreme conditions looks at fundamental material behaviors under the influence of external stimuli including pressure, temperature, and radiation. There are a number of elements that have not been investigated under these conditions due to unavoidable difficulties in handling the material such as high chemical reactivity or radioactivity. Technetium metal is one of the last elements to be investigated at extreme conditions of high pressure and temperature. The goal of this project is to explore the high pressure synthetic pathways for technetium compounds and characterize the pressure-dependence of the structural properties of technetium compounds. *In situ* structural measurements are made with synchrotron x-ray diffraction while in a Diamond-Anvil Cell (DAC) at elevated pressures and temperatures.

Technetium is a transition metal with similar chemical and physical properties to rhenium with the major difference that technetium has no stable isotopes, all technetium isotopes are radioactive. Developing a chemically stable waste form to contain radioactive waste is important to our nation’s energy security because we produce about 2,000 metric tons of spent fuel annually. In order to develop advanced waste forms a precise understanding of the chemical and physical properties of these materials is needed at extreme conditions. The first result from this project is an equation of state that is derived from static high pressure and high temperature data. This will create a benchmark for further technetium calculations and high pressure technetium synthesis. The structural properties of technetium metal are presented up to 67 GPa and between 100-450 K.
6. **Multi-century Annual Streamflow Reconstruction using Tree Ring Chronology and Pacific Ocean Climate Information**
Saria Bukhary, Ajay Kalra and Sajjad Ahmad Department of Civil and Environmental Engineering and Construction

Water shortage impacts due to recurring hydrologic droughts in southwestern U.S., has been exacerbated by increasing population. Better planning is a key factor for sustainability of water resources in the region, which requires the knowledge of the past hydro-climatic variability. Available instrumental streamflow records do not typically extend past the last century and may not be an adequate indicator of long-term hydrologic variability, especially the duration and intensity of past drought conditions. Hence streamflow reconstruction maybe used to extend the length of available instrumental records. Tree ring chronology (TRC), an indicator of climate, is a conventional predictor for reconstruction of streamflow. Studies have shown that the climate index of Pacific Decadal Oscillation (PDO), Southern Oscillation Index (SOI) and the Pacific Sea Surface Temperature (SST) affect the volume of streamflow in western United States. This study aims to improve the traditional reconstruction methodology using TRC, by incorporating PDO, SOI and SST as predictors, together with TRC, in a stepwise linear regression model. The proposed methodology is applied in Sacramento Basin, having a history of recurring droughts on four full naturalized flow gages with an observed period of 1906-1980. Results indicate that using SOI along with TRC provide better reconstructions (calibration $r^2= 0.85$) compared to when using SST, PDO and TRC (calibration $r^2= 0.74-0.81$). Reconstructions performed for years 1800-1980, may help make informed decisions regarding regional water resources and planning. For future work, this improved methodology can be applied to other basins in U.S. using appropriate climate drivers for that region.
7. Reconstructing Pacific-Atlantic Hydrologic Variability during the Medieval Climate Anomaly Using Paleorainfall δ¹⁸O Records from the Tropics
Melisa Bishop, Department of Geoscience

Quaternary paleoclimate records from Central America exhibit periods of persistent drought during the Medieval Climatic Anomaly (MCA) (800-1200 CE) that may be linked to La Niña-like conditions in the eastern Pacific, a positive phase of the North Atlantic Oscillation (NAO), and changes in monsoon intensity over Central America. Effects of the MCA were expressed globally, but duration and intensity varied spatially. The few speleothem records that exist from this area demonstrate similar drying trends during this time, however, pronounced regional rainfall variability is evident. To better constrain the significance of these effects, radiometrically-dated speleothems from Panama were analyzed for their δ¹⁸O composition. Acquiring additional high resolution reconstructions from this part of the world is important for understanding the geographical manifestations and oscillations between atmospheric-oceanic circulation patterns. It’s expected that isotopic signatures will show localized heterogeneity in rainfall amounts with respect to southwest Mexico, the northern Yucatan, and southern Belize. The large assemblage of paleoclimate data from this region originates from δ¹⁸O values of microfossils in lake sediments and cave calcite deposits (speleothems). Lacustrine microfossils are known for their ecological diversity in that shell δ¹⁸O values readily respond to changes in the precipitation/evaporation ratio, lake levels, temperature, and salinity. Although results from various locations show an overall dry MCA, resolutions are significantly lower compared to speleothems, and therefore may not capture short term drying events. Two sediment cores collected from Belize will be compared to speleothem isotope records to establish how adequately they characterize drought-like conditions during this time interval.
8. **Experimental Measurement of the Pressure Drop in the Flexible Ducting System**  
Samad Gharehdaghimollahajloo and Samir Moujaes, Department of Mechanical Engineering

Flexible duct air distribution systems are used in a large percentage of residential and small commercial buildings in the United States. Very few empirical or predictive data are available through to help provide the HVAC design engineers with reliable information. Moreover, because of the ducts flexibility, the shapes of these ducts offer a different set of operating fluid flow and thermal conditions from traditional smooth metal ducts. Hence, both the flow field and heat transfer through this kind of ducts are much more complex and merit to be analyzed. The authors previously computed some of the hydrodynamic and heat transfer characteristics of the air flow inside these ducts over a range of flow rate commonly used in the flow conditions of these air distribution systems. The computational analysis showed that the pressure drop along flexible duct is much more than the amounts reported by manufacturer especially in cases where the duct is shrunk considerably. This means HVAC design engineers cannot simply rely on the manufacturers’ data when they design a flexible ducting system. To complete the previous computational research the authors conducted an experimental investigation on flexible ducts. The aim of this research paper is to experimentally measure the pressure drop along flexible ducting system in order to correlate the real pressure drop to manufacturers’ data presented on the user’s manual of the product. The results show that the pressure drop is strongly correlated to the shrinkage of flexible duct. The more shrinkage the more the pressure drop.
9. **Computed Tomography**  
Ali Pour Yazdanpanah, Department Electrical and Computer of Engineering

Computed Tomography (CT) is used for medical diagnostics, non-destructive testing, airport baggage screening and also considered for cargo inspection for potential threat determination, particularly for explosives and Special Nuclear Materials (SNM). For both medical, security or industrial application of CT a limited number of views is an option for whether reducing the radiation dose or screening time, and obviously cost in all cases. One of the main issues for image reconstruction focuses on data sufficiency and on how to estimate a tomographic image when the projection data are not theoretically sufficient for exact image reconstruction. Insufficient data problems occur quite frequently because of practical constraints due to the imaging hardware, scanning geometry, or ionizing radiation exposure. This study is dedicated to developing an advanced analytical framework to exercise both model-based and PDE based approaches and we expect to reduce artifacts and improve important image quality metrics in algebraic reconstruction of the CT with few view angles.
10. **Review on Ultra High Performance Concrete**  
Robabeh Jazaei and Nader Ghafoori, Department of Civil and Environmental Engineering

Over the centuries, a wide variety of concretes have been developed among which the Ultra-high-performance fiber-reinforced concrete (UHPFRC) is one of the most advanced classes with the highest mechanical properties. UHPFRC has demonstrated superior strength capacity, ductility, durability, and fracture energy capacity. Moreover, improvements in the compressive strength of concrete have allowed concrete structural member size and self-weight to be significantly reduced, which has in turn resulted in cost reduction and structural aesthetic enhancement. These excellent properties are achieved through a very dense matrix that leads to a homogenized microstructure and the incorporation of a high volume content of reinforcing fibers. This poster presents the first part of the authors’ research on UHPFRC which includes a thorough review on the previous researches.

Experimental investigation and numerical analysis are two main methods that are used to predict the behavior of UHPFRC under different static and/or dynamic loading conditions. In the last few decades, several full-scale experimental researches have been conducted to study the behavior of ultra-high performance fiber reinforced concrete. However, only limited research has been devoted to use of different fibers to increase impact or blast resistance of UHPCRC for existing and susceptible structures to terrorist attacks or accidental impacts. As a result, there is now a desire to investigate the blast resistances of UHPRC with different available fibers on the market to compare which ones significantly improves UHPFRC mechanical properties such as fresh, load-dependent, time-dependent, transport and durability.
Posters 11 – 15: Judging at 8:45 – 10:00am

11. Amanda Gentry, Department of Geoscience
12. Emily Siska, Department of Chemistry
13. Sichu Shrestha, Department of Civil and Environmental Engineering and Construction
14. Nudthawud Homtong, Department of Geoscience
15. Michael Steiner, Department of Geoscience

10:00 – 10:30am Break

Posters 16 – 19: Judging at 10:30 – 11:30am

16. Jason Sylva, Department of Chemistry
17. Candace Suh-Lee, Department of Computer Science
18. Kazi Tamaddun, Department of Civil and Environmental Engineering and Construction
19. Jarod Wolffis, Department of Chemistry
Synorogenic basin development associated with emplacement of the Willard-Paris-Meade thrust sheet in northeast Utah, southeast Idaho, and southwest Wyoming during the Early Cretaceous provides unique insight into the poorly understood early deformation history of the Sevier fold-thrust belt. Timing of initiation of shortening in the Sevier fold-thrust belt bears on whether the Sevier orogen experienced a two-stage or continuous history of hinterland and foreland shortening. I propose to couple the thrust sheet exhumation history, as recently revealed by low-T thermochronology, with a sedimentologic record of coeval basin fill, to provide an integrated record of active erosional exhumation of the thrust sheet and basin deposition. Material eroded from the thrust sheet was deposited as synorogenic strata in a foreland basin. These strata contain provenance information including detrital zircon (DZ) grains containing unique age signatures related to units within the thrust sheet. Additionally, preliminary data show that wind-blown, arc-derived zircons are present in some of the basin strata that can be used to closely date deposition. As timing of deformation and sedimentation are poorly understood, it is necessary to locate DZ bearing samples from each unit within the basin, perform U-Pb age analysis, and determine an unroofing sequence and maximum depositional age. Furthermore, it is necessary to ensure that adjacent basin is synorogenic. Sedimentation rates and depositional environments will be determined. The coupled geochronologic, sedimentologic and stratigraphic analysis will provide a more complete record of the early shortening history of the Sevier fold-thrust belt and resolve the two-staged versus continuous shortening controversy.

Presentation: Geological Society of America Rocky Mountain Section Meeting, May 2013
12. **Novel Radionuclide Wasteforms Prepared Under Pressure**  
Emily Siska, Department of Chemistry

As of 2012, nuclear power makes up 5.7% of the world’s energy\(^1\) and is growing every year. The United States has an open-cycle approach which produces \(~27\) tons of waste/year/reactor. Currently, the most widely used waste form for nuclear waste is borosilicate glass. Although glass and ceramic waste forms have proven to be durable and sufficient at immobilizing many radionuclides; they are not ideal for certain radionuclides including I\(_2\), Kr, Tc and actinides. These nuclear waste products have long half-lives and have particularly harmful health and environmental effects. There is a need to design new waste forms that can immobilize these problematic radionuclides and reliably store them for thousands – and in some cases millions of years. Zeolites are a family of either naturally occurring or synthetic aluminosilicate minerals composed of Earth-abundant, inexpensive, low toxicity elements. Although the diameter of the windows to these cages is smaller than the diameters of the intended guests; under certain conditions the windows can accommodate diffusion of larger guest atoms/molecules. Lattice distortions and vibrations brought on by pressure and temperature can make the structure flexible enough to allow for the diffusion of small molecules/ions. Transition state theory calculations have also estimated the diffusion rates of Ar and Kr into sodalite cages\(^3\). Compression of the rhombohedral form of silica-sodalite was performed in hopes of learning the behavior and capabilities of the structure and how to possibly improve it for waste immobilization. Also, using General Utility Lattice Program (GULP) we predict pressure dependent changes to the structures.
Biodegradation of perchlorate using a fluidized bed reactor (FBR) has shown remarkable results in treating water contaminated with perchlorate. Perchlorate (ClO4-) is one of contaminants of concern for drinking water because it interferes with iodine uptake in thyroid gland and disrupts endocrine system. Perchlorate is widely detected in groundwater in United States, particularly in the southwest region. In a biological treatment process, bacteria use a carbon source/ electron donor such as ethanol and acetate, and reduce perchlorate (electron acceptor) to chloride and oxygen under anaerobic conditions. Acetate, ethanol and protein peptones are the most widely used chemicals for carbon source for perchlorate reduction. However, these chemicals are expensive to treat huge volume of water. The Henderson Perchlorate Treatment Plant uses ethanol (300 gallon ethanol/day) as carbon source. This study focuses on evaluation of wastewater from the industries- Ocean Spray (Juice), Unilever (Ice cream) and Biodiesel (Glycerol) in Nevada as a suitable alternative to those chemical carbon sources. The experiment was conducted with commonly used carbon sources- Acetate, Ethanol, Glucose, and Lactate, and the three industrial wastewater (Glycerol, Ocean spray, and Unilever). The experiment was conducted for two weeks in 300 mL air tight bottles containing 1000 mg/L perchlorate and the carbon source at 1:3 ratio, buffer, nutrients and mixed culture of anaerobic bacteria capable of reducing perchlorate. The reactors were kept on a shaker to ensure complete mix for the entire period such that the perchlorate is to below 15 parts per billion (ppb), an EPA reference dose for perchlorate. The performance of the reactor was evaluated based on perchlorate and carbon removal, and bacterial growth. Dionex ICS 2000 was used to measure perchlorate, Total Organic Carbon (TOC) test for carbon content, and turbidity, and optical density for biomass growth.
14. Climate Change Impact on Precipitation in the Chi-Mun basin, Thailand
Nudthawud Homtong, Department of Geoscience

The Chi-Mun basin (CMB) is one of the largest sub-basins that contributed runoff to the Lower Mekong basin (LMB). This basin is the hub of agricultural productivity, especially rice field. The CMB has been affected by climate change in the recent decades. This study consists precipitation analysis of 15 weather stations around the CMB in 55 years’ time period (1950-2005). The aims of the study are to investigate trend of precipitation and compare to El Nino Southern Oscillation (ENSO) patterns. Average precipitation of the CMB over 55 years is 1713.01 mm/year. Throughout 55 years period, the precipitation data can be divided into three periods of time which are (1) above mean precipitation: 1950-1966, (2) about mean precipitation: 1967-1990, and (3) below mean precipitation (1991-2005). The overall trend of precipitation can be represented by linear trend equation of \( y = -8.7413x + 1966.7 \). Interestingly, all precipitation data behaves as a negative trend and unrelated to ENSO. This study is beneficial for further study of climate change effects in the area in term of climate modeling and prediction.
Madden Water is needed to support all life on Earth, and water is therefore a crucial consideration for habitability on other planets. While pure liquid is not stable on the surface of Mars, it is likely that brines may exist at least temporarily. Brines, which have been shown to host life at temperatures as low as -30°C and water activities above 0.60, have different implications for life than dilute waters. Studying the impact of brines on dissolution can therefore provide insight into the possible past and present habitability of Mars.

Nontronite is an iron-rich clay mineral that has been detected on the surface of Mars. Since nontronite is found in ancient terrains, it may provide a record of previous alteration on Mars, possibly including habitable environments. An alteration signature could be produced by brine dissolution which could shed light on past conditions on Mars.

In this work, we are measuring dissolution rates of nontronite as a function of activity of water ($\alpha_{H2O}$) and temperature to allow further interpretation of aqueous conditions on Mars. Temperature experiments will also produce an activation energy. An alteration signature of past interaction with brines could therefore be important in providing insight into possibly habitable environments on Mars.

Dust deposition can have a significant impact on the efficiency of solar collectors. Specific information is needed on dust composition, generation, and adhesion mechanisms in order to develop adaptive management strategies. If we can determine the chemical composition and particle morphology of dust, we can determine if the source is local vs. regional, or global. This characterization will also help determine the chemical interactions between the particles and various surfaces. It should also aid in understanding the role of dust in light attenuation as well as in developing cleaning protocols for solar collection devices. A variety of sampling techniques were employed to obtain particulate matter for characterization. These techniques included high/low volume air sampling, collection of dust fallout, and direct collection from solar devices and Vugs. Various analytical methods were used to characterize atmospheric particulates that can deposit on the surface of solar devices. These methods included: Raman Spectroscopy, High Performance Liquid Chromatography, Scanning Electron Microscopy X-ray Microanalysis, and Pyrolysis Gas Chromatography Mass Spectrometry. This has allowed us to identify several different minerals as well as obtain information on the organic matter present. In addition, we plan to examine particle distribution, size distribution, and trace metal concentration.
17. **Quantifying Security Risk of Network Vulnerability by Risk Conditions**  
Candace Suh-Lee, Department of Computer Science

Software vulnerabilities are the weaknesses in the software that inadvertantly allow sometimes dangerous operations. If the vulnerability is in a network service, it poses serious security threats because a cyber-attacker can exploit it to gain unauthorized access to the system. Hence, rapid discovery and mitigation of network vulnerabilities have been critical issues.

In today’s dynamic IT environment, it is common practice that an organization prioritizes the mitigation of discovered vulnerabilities according to their risk levels. Currently available technologies, however, associate each vulnerability with a predetermined static risk level which does not take the unique characteristics of the target network into account. This often leads to inaccurate risk prioritization and less-than-optimal resource allocation.

In this research, we introduce a novel way of quantifying the risk of network vulnerability by augmenting the static risk level with conditions specific to the target network. The method calculates, in linear time, the risk value of each vulnerability by measuring the proximity to the untrusted network and risk of the neighboring hosts. The resulting risk value is the composite index of the individual risk, network location and neighborhood risk conditions. Thus, it can be effectively used for prioritization, comparison and trending; and therefore, reduce the time and cost of mitigation by enabling fast and accurate risk prioritization.

We tested the methodology in various network models and found the results were well in line with the generally accepted network security principles. Further work is in progress to verify the results with empirical data.
Change in climatic conditions as a result of global warming has become one of the most crucial issues of the present time. Climate variability is causing many changes in the natural environment including the hydrologic cycle, which influences the inadequate water resources. Meeting the demand of limited water resources with the increasing population has become a big challenge for water resource managers. Analyses of trends in hydrologic variables (i.e., temperature, precipitation, streamflow etc.) have been helpful to deduce changing patterns in global and local climate. This study focuses on detecting long-term (gradual) and short-term (abrupt) trends in streamflow pattern of the continental USA. The spatiotemporal distributions of these patterns were also assessed.

Discrete Wavelet Transform (DWT), which is a relatively new technique used in spectral analysis, has been used in this study to analyze the streamflow of time-series data. DWT has been used to decompose the data into lower resolutions which were then analyzed with statistical tools. Modified Mann-Kendall (MK) trend tests were used to analyze long-term trends whereas Pettit test was used to analyze abrupt shifts or steps. Records from 237 unimpaired streamflow stations with 62 years (i.e., 1952-2012) of continuous data were collected and the streamflow patterns were analyzed for water-year, four seasons (Fall, Winter, Spring and Summer) and three different dyadic scales (i.e., 1 year, 2 years and 4 years). The results of this study may assist water managers to efficiently plan and manage the water resources under changing climatic conditions on different time-scales.

19. **DTF Analysis of the Resistivity and Magnetization of Tc5I13**
Jarod Wollfis, William Kerlin, Keith Lawler, Frederic Poineau, Kenneth Czerwinski, Al Sattelberger and Paul Forster, Department of Chemistry

A new binary halide structure type has been discovered with the composition Tc5I13. The structure contains a molecular unit that can be pictured as containing a square pyramid of technetium atoms connected by metal-metal bonds surrounded by iodide. Despite the molecular connectivity, the compound appears to show electrical conductivity. In order to verify the experimental resistivity and magnetic susceptibility, Density Functional Theory (DFT) calculations were performed using Vienna Ab-initio Simulation Package (VASP). After carrying out a number of different computational approaches, we established that the most reasonable simulation results predict electronic and magnetic properties consistent with experimental values. The picture of the electronic structure provided by the calculations provides our experimental collaborators with a means of explaining the interesting physical properties in this new solid.
Graduate & Professional Student Research Forum

Science and Health Science

Poster Session A
UNLV Student Union Ballroom

Posters 20 – 24: Judging at 8:45 – 10:00am

20. Cindy Lee-Tataseo, Department of Health Care Administration and Policy
21. Israel Alvarado, School of Life Sciences
22. John Harry, Department of Kinesiology and Nutrition Sciences
23. Jennifer Brown, School of Dental Medicine
24. Kaylee Wonder, School of Dental Medicine

10:00 – 10:15am Break

Posters 25 – 29: Judging at 10:15 – 11:30am

25. Kristyne Bartel, Department of Kinesiology and Nutrition Sciences
26. Caldonia Hartel, School of Life Sciences
27. Ecsile Chang, School of Dental Medicine
28. Jessica Dick, School of Dental Medicine
29. Michelle Farnoush, School of Dental Medicine
20. **Review of IRB processes and metrics for IRB review at UNLV**  
Cindy Lee-Tataseo, Department of Healthcare Administration and Policy  
The process of the Institutional Review Board (IRB) can vary from institution to institution. They can sometimes be mysterious to those who submit for IRB review. This poster will describe the process for IRB review at UNLV and shed light on our local review processes. In addition, metrics describing the types of protocols being reviewed as well as the number of reviews and the amount of time it takes for review will be presented. These will be compared to national averages for institutions that report metrics to the public.
21. **Inhibition of *Paenibacillus larvae* Spore Germination**  
Israel Alvarado, Michelle Elekonich and Ernesto Abel-Santos, School of Life Sciences

**Background:** American Foulbrood (AFB) is a honey bee larval disease caused by *Paenibacillus larvae*. No effective means to eradicate AFB exists because the infectious *P. larvae* spores are resistant and can remain dormant indefinitely. As spore germination is required for AFB disease development, inhibition of spore germination may prevent disease. We previously identified triggers (L-tyrosine plus uric acid) and inhibitors (indole or phenol) of *P. larvae* spore germination in vitro. In this study, we screened 40 indole and phenol analogs for their ability to act as antagonists of *P. larvae* spore germination. We hypothesized that the addition of functional groups to indole and phenol molecules would enhance their inhibitory effect.

**Methods:** To test for antagonists of *P. larvae* spore germination, spores were incubated with indole and phenol analogs. After incubation, triggers of germination were added to the spores. Germination rates were calculated using the initial linear decrease in relative optical density.

**Results:** Ten of the 40 indole analogs were strong inhibitors of *P. larvae* spore germination. The half maximal inhibitor concentration (IC50) for analogs ranged between 0.02-0.55 mM. Furthermore, we found that indole and phenol analogs prevented spore germination in nutrient rich medium.

**Conclusions:** Indole analogs with electron withdrawing groups (EWG) were capable of inhibiting spore germination in vitro. Halide and nitro groups enhanced indole’s activity by 20 fold and could be used to synthesize germination inhibitor analogs. The indole and phenol analogs identified will be used to determine if inhibiting *P. larvae* spore germination prevents AFB disease in honey.

Presentation: General Meeting of the American Society for Microbiology, May 2014
22. Effects of Dual-Tasking on Spatio-Temporal Gait Parameters in Children with Cerebral Palsy
John R. Harry, Robbin Hickman, Szu-Ping Lee, Brendan Morris and Janet S. Dufek,
Department of Kinesiology & Nutrition Sciences

Background: The ability to dual-task is more challenging for children with cerebral palsy (CP) than for typically developing children. Yet, little is known about the effects of dual-tasking on functional ambulation in this population.

Purpose: To examine the effects of dual-tasking on spatio-temporal characteristics of gait in children with CP.

Methods: Five assenting children with CP (four boys, one girl; 7.0±0.9 yrs, 125.7±6.5 cm, 26.0±4.5 kg) participated in the experiment and walked twice across the GAITRite® instrumented walkway system (CIR Systems Inc./GAITRite, Sparta, NJ; 120 Hz) at their self-selected speed. Next, participants completed the same walking protocol while simultaneously carrying a tray, similar to what they might do in a school lunchroom. Foot pressure data were extracted and analyzed by footfall to compare stride length, stride rate, base of support width, double support time, and stride velocity for each condition. Data were evaluated using a single-subject procedure (Model Statistic, Î± = 0.05). Results: Three children significantly reduced their stride length when dual tasking (87.2±9.1 vs. 79.4±19.5 cm; p<0.05) while one showed an unexpected increase. (86.9±0.0 vs. 96 2±0.0; p<0.05). Two of five children significantly reduced their stride velocity, (84.8±16.6 vs. 68.4±17.0 cm/s; p<0.05), and unilateral base of support reduced in two children (11.8±1.3 vs. 8.3±0.5 cm; p<0.05). Only one of five children demonstrated a reduction in stride time. (1.13±0.07 vs. 1.05±0.05 s; p<0.05)

Conclusion: Dual-tasking significantly altered certain gait parameters in children with CP, although the change was inconsistent for stride length.

Presentation: 33rd Annual Meeting of the American College of Sports Medicine Southwest Chapter, Costa Mesa, CA. October 17 – 18, 2014
23. **Toll-like Receptor 2 Activation Increases Expression of Platelet-Activating Factor Acethylhydrolase**  
Jennifer Brown, School of Dental Medicine

**Objectives:** Toll-like receptor 2 (TLR2) is a member of the TLR family of pattern-recognition receptors which play a fundamental role in the activation of innate immunity. *Porphyromonas gingivalis (Pg)* is an oral pathogen associated with the early onset of periodontitis and the atypical lipopolysaccharide (LPS) of *Pg* is an agonist for TLR2. While activation of TLR2 mediates the production of numerous inflammatory cytokines, the objective of this study was to investigate whether TLR2 signaling would also alter the expression of the anti-inflammatory enzyme platelet-activating factor acetylhydrolase (PAF-AH).

**Experimental Methods:** Human Mono-Mac 6 cells were cultured in RPMI media supplemented with 10% FBS. Cells were grown in 24-well tissue culture plates at an initial density of 2 X 105 cells/mL and then treated with *P. gingivalis* LPS (0-1000 ng/mL) or a synthetic ligand of TLR 2 (PAM3CSK4, 10-1000 ng/ml). TLR2, TLR4, and PAF-AH RNA levels were examined by quantitative Real-Time PCR. Activation of intracellular signaling cascades implicated in TLR2 receptor activation was examined by using specific pharmacological inhibitors.

**Results:** Treatment of MM6 cells with either *P. gingivalis* LPS or PAM3CSK4 resulted in a dose-dependent increase in PAF-AH expression which reached a maximum of 5-fold at 24-hours after administration. TLR2 receptor activation also resulted in a roughly 2-fold increase in TLR2 expression while TLR4 expression remained unchanged. The administration of pharmacological inhibitors of various MAPK pathways demonstrated significant inhibition of PAF acetylhydroase expression by blocking both the p38 and JNK MAPK pathways.

**Conclusions:** Human monocyte/macrophages exposed to *P. gingivalis* LPS increased TLR2 expression resulting in enhanced responsiveness to bacterial pathogens. The expression of the major PAF degradative enzyme, PAF-AH, also increased substantially. Up-regulation of PAF-AH by periodontal disease causing agents likely represents a compensatory mechanism to control local PAF levels in inflammatory situations.
24. **Oral Microbial Burden of Periodontal Pathogens among Orthodontic Patients**  
Kaylee Wonder, School of Dental Medicine

**Objectives:** Although many studies of orthodontic patients have necessarily focused on changes in levels of cariogenic pathogens associated with bracket placement, fewer studies have examined the role of changes of periodontal pathogens – particularly among adult patients. In addition, recent evidence has suggested that increased levels of a specific periodontal pathogen, *Fusobacterium nucleatum*, may also increase risk for development of colon cancer in adults through direct pathways. Based upon this evidence, the objective of the current study was to screen saliva samples taken from orthodontic patients at UNLV-SDM to determine the prevalence of periodontal pathogens, including *F. nucleatum*.

**Methods:** Following an OPRS (human subjects) approved protocol, saliva samples were collected at random from orthodontic patients over the course of several weeks. DNA was subsequently isolated from these samples and screened using polymerase chain reaction (PCR) for the presence of *Fusobacterium nucleatum*, *Treponema denticola* and *Porphyromonas gingivalis*, using primers designed specifically to distinguish these organisms.

**Results:** From the 56 samples collected and analyzed to date, *F. nucleatum*, *P. gingivalis*, and *T. denticola* were detected in 16.1%, 17.8% and 29%, respectively. No significant differences were found between males and females or between minority and non-minority patients.

**Conclusions:** These findings support previous evidence that a significant proportion of orthodontic clinic patients may harbor periodontal pathogens at levels high enough for detection from unstimulated saliva samples, but suggest some pathogens – including *T. denticola*, may be present at much higher levels within this population. These findings are important to determine the changes to oral health that adult patients within this population may face during orthodontic treatment and may suggest these patients could benefit not only from dental care and periodontal disease treatment, but also from increased education or awareness regarding the possibility of increased risk for the development of colon cancer among some patients.
25. **Relationship between Resistance Band Tension and Muscle Activity during Use of a Hip Exercise Device**  
Kristyne Bartel, Austin Coupé and Janet Dufek, Department of Kinesiology and Nutrition Sciences

Numerous exercise equipment companies have introduced products for training that incorporate resistance bands often with little known about the relationships among the bands and muscle activation (EMG) during exercise. One device using bands for resistance is a thigh trainer, intended to target hip ab/adduction strength. The purpose of this study was to determine the relationship between changes in band tension and corresponding muscle activity when using a thigh trainer. Ten healthy male subjects (81.3±13.2 kg; 1.73±0.07 m; 24.7±1.1 years) granted consent and were instrumented with EMG electrodes on the adductor longus, a primary hip adductor, and gluteus medius, a primary hip abductor. Participants used the thigh trainer for 30 seconds at each resistance (low, moderate, high) while muscle activity was recorded. The changes in muscle activity between each resistance was compared to changes in tension produced between each resistance level. Resistance bands showed an 11% change between low and moderate and 5.4% change between moderate and high resistance, with strong correlations at each strain. This was compared with changes in muscle activity at each level of resistance band. In comparison, gluteus medius EMG activity exhibited a 3.7% change between low and moderate and 5.7% change between moderate and high resistance. Adductor longus EMG activity showed a 13.1% change between low and moderate and 24.3% change between moderate and high resistance. These findings suggest that muscle activity may increase disproportionately in comparison to the physical resistance exhibited by resistance bands.
Caldonia Hartel, Sean Neiswenter and Brett Riddle School of Life Sciences

Continued drought in the American Southwest has caused a reduction in unique isolated water dependent desert habitats. This loss will lead to the extinction of local animal populations dependent on such habitats, with small isolated populations at a higher risk for local extinction. *Sigmodon arizonae* is a species of cotton rat dependent on such disappearing habitats and has one small isolated population along the Lower Colorado River. With a predicted decrease in suitable habitat along the Lower Colorado River, this population is at a very high risk for extinction. This population can be protected by state and federal law, allowing conservation efforts to be put in place. However, this requires proof that this population is genetically distinct from the rest of the species. If conservation efforts are successful, it will likely result in the preservation of a disappearing habitat.

Past research on this population suggested that the river populations was unique from the rest of the species, but it had poor confidence levels, not allowing for any robust conclusions. To better answer this question, I will be analyzing 20 highly variable DNA markers, called microsatellites, in individuals spread across *S. arizonae's* range. No microsatellite markers are currently available for this species, leading me to develop my own from genomic data. We expect, when the microsatellites are completed and analyzed, that they will show the river population as genetically unique from the rest of the species, allowing for conservation efforts to take place, and a unique habitat to be preserved.
27. Oral Prevalence of Fusobacterium Nucleatum Reveals Age-Related Colon Cancer Risks
Ecsile Chang, School of Dental Medicine

**Background:** *F. nucleatum* is a gram-negative anaerobe mainly associated with the onset and development of periodontal disease. Recent studies have suggested oral prevalence of *F. nucleatum* may also increase risk for development of colon cancer through both direct and indirect pathways. The purpose of this cross-sectional study was to screen saliva samples taken in a dental school to determine the prevalence of *F. nucleatum* in this population.

**Methods:** Using an approved protocol, saliva samples were collected at random from patients over a three-month period. Basic demographic information was also collected to assist with data analysis, but with no patient identifying information. In brief, DNA was isolated from these samples and subsequently screened for the presence of *F. nucleatum* and *Treponema denticola* using polymerase chain reaction (PCR) and primers designed specifically to distinguish these organisms.

**Results:** From these ninety (90) samples, DNA was successfully isolated from 88 for a recovery rate of 97.8%. Overall, 56.9% of samples tested positive for *F. nucleatum* and 44.4% tested positive for *T. denticola*. Sorting these patients according to age, these results demonstrated that 81.8% of samples from patients (>50 yrs) tested positive for *F. nucleatum* compared to patients (<50 yrs), 17.8% of whom tested positive. Similarly, 50% of patients (>50 yrs) tested positive for *T. denticola*, with only 35.7% of patients (<50 yrs) testing positive.

**Discussion:** These findings suggest that within the UNLV-SDM clinic population, a significant proportion of patients were found to harbor both *F. nucleatum* and *T. denticola*. Sorting these results by age revealed a much higher prevalence for both periodontal disease-associated organisms in patients over 50. These results suggest that such patients may benefit not only from dental care and periodontal disease treatment but also from increased education and awareness regarding increased risk for the development of colon cancer.
28. Analysis of Gender-Specific Differences in Oral Melatonin Receptor Expression
Jessica Dick, School of Dental Medicine

**Background:** Melatonin is a natural circadian-regulated hormone that is involved in the regulation of the sleep-wake cycle. Melatonin is also available as a dietary supplement and has recently been tested for efficacy in a randomized, double-blind, placebo-controlled crossover trial involving sleep disruption. Because melatonin disruption may also be associated with oral cancer, and major differences are found in oral cancer risk between females and the primary objective goal of this study was to evaluate gender-specific difference in the expression of melatonin receptors among dental clinic patients.

**Methods:** Following IRB approval, patients in the dental clinic waiting area were randomly asked to participate in the study over several weeks, which involved the collection of saliva and non-identifiable demographic information. DNA and RNA were subsequently extracted from the saliva samples and screened for melatonin receptor expression.

**Results:** From 122 samples collected, 75 had sufficient RNA and demographic information available to for analysis. Samples were nearly equally female (n=37/75 or 49.3%) and male (n=38 or 50.7%). Average RNA recovery was approximately 771 ng/μL, which was not significantly different between females and males (p >0.05). However, the preliminary RT-PCR screening of melatonin receptors may suggest there are some differences in expression between males and females – although this may not be statistically significant.

**Conclusion:** Although some studies have evaluated gender expression differences in melatonin, these focused on insomnia and other sleep-related disorders. This study may be among the first to examine the role of gender in healthy oral tissues from adults specifically for expression of the three primary melatonin receptors. As oral cancer risk is greatly increased for males compared with females, and the likelihood of dietary supplementation is also greatly influenced by gender, understanding the natural distribution of melatonin receptor function between males and females would increase our understanding for the importance of potential responsiveness and the relationship with oral health.
Background: The pineal gland hormone melatonin (MLT) is integrally involved with sleepwake regulation and daily circadian cycles. Some evidence has suggested dysregulation of MLT may be associated with the onset of various conditions, including insomnia, depression and various types of cancer – including oral cancer. To date, however, few studies have evaluated the role of age specific to MLT dysregulation and these conditions despite the fact each may be positively associated with age. In fact, age is the single best predictor for dietary supplementation using MLT. Based upon this evidence the goal of this study was to perform a cross-sectional analysis of dental clinic patients to evaluate MLT regulation by age.

Methods: Using an approved protocol, saliva samples were collected at random from patients ranging in age from 20 – 70. Samples were de-identified, along with demographic information for analysis. Following centrifugation, DNA and RNA were extracted from each sample for screening and analysis using PCR primers specific for the MLT receptors MT1, MT2 and RZR.

Results: Of the 75 samples collected, DNA and RNA was successfully isolated from 70 samples, yielding a recovery rate of 93.3%. RNA analysis revealed an age-dependent decrease in overall mRNA per cell between samples taken from patients over 50 years of age (n=35) compared to those under 50 (n=35). In addition, RT-PCR against the mRNA standard GAPDH also revealed negative correlation with age. Even after adjusting for cell number and mRNA level, on-going analysis of MLT receptors MT1, MT2 and RZR appear to confirm an age-related decrease in MLT receptor mRNA expression.

Conclusion: Although previous studies have demonstrated melatonin dysregulation associated with many conditions, and that dietary MLT supplementation is also age-related, few studies have explicitly studied the variable of age and the expression of MLT receptors in cells of the oral cavity. Because the incidence and risk of oral cancers is also age-related, and some research now suggests that MLT activity and receptors may be down-regulated in oral cancers, more evidence and analysis will be needed to more specifically identify the variables that may influence MLT levels, regulation and risk – including the role of age.
Graduate & Professional Student Research Forum
Science and Health Sciences
Poster Session D
UNLV Student Union Ballroom

Posters 30 – 35: Judging at 8:30 – 10:00am

30. Austin Coupé, Department of Kinesiology and Nutrition Sciences
31. Theresa Clark and Andrew Russell, School of Life Sciences
32. Saro Oknaian, School of Dental Medicine
33. Sanae El Ibrahimi, School of Public Health
34. Alexa Standerfer, Department of Physical Therapy
35. Brady Petersen, School of Dental Medicine

10:00 – 10:15am  Break

Posters 36 – 40: Judging at 10:15 – 11:30am

36. Tori Stone, Department of Kinesiology and Nutrition Sciences
37. Katelyn Porter, School of Life Sciences
38. Jared Wilson, Department of Kinesiology and Nutrition Sciences
39. Kory Grahl, School of Dental Medicine
40. John Silvaroli, School of Dental Medicine
30. **Effect of Outsole Degradation on Running Kinetics and Kinematics**  
Austin Coupé, Julia Freedman Silvernail and Janet Dufek. Department of Kinesiology and Nutrition Sciences

**Purpose:** The purpose of this project was to expand on the knowledge of how running shoes affect running mechanics. Specifically, we sought to explore the changes that occur as shoes become worn and broken down after outdoor running.

**Methods:** A pilot subject (27 years; female; 1.61m; 53.5kg) volunteered. Outsole thickness measurements were taken of the test shoes (Nike Free 5.0) using an ultrasonic thickness gauge. The subject ran in test shoes across a 15m runway in the biomechanics laboratory, striking a force platform. Ten successful trials were completed which included contact with one foot on the force platform while running at 3.5m/s±5%. The subject ran outdoors in the test shoes at preferred pace and schedule to accumulate wear. After 130 miles of outdoor running the subject returned to the laboratory and repeated data collection procedures. Paired samples t-tests ($\alpha = 0.05$) were conducted on material, kinematic, and kinetic variables.

**Results:** Materials: Significant outsole degradation was observed in forefoot and rearfoot regions of both shoes ($p<0.05$). Kinematics: Rearfoot eversion angle at contact and maximum value were significantly different ($p<0.05$); total eversion excursion and angle at toe-off were not ($p>0.05$). Kinetics: Vertical impact peak, time to impact peak, and maximum vertical force were all significantly different ($p<0.05$).

**Conclusion:** 130 miles of wear caused significant changes to both running shoe outsole composition and running mechanics. It is uncertain if these changes in running mechanics affect the risk of suffering a running-related injury. Additional research is needed to determine where the injury risk/shoe alteration threshold lies.
31. Can Desert Mosses Hide from Climate Change? The Buffering Capacity of Moss Microclimates
Theresa Clark, Dale Devitt, Lloyd Stark and Alexander Russell, School of Life Sciences

In arid environments of the American Southwest, mosses perform many ecosystem functions such as soil stabilization and habitat provisioning for small organisms, while some 400 species contribute substantially to plant diversity in deserts, scrublands, and arid woodlands. Although these arid-adapted mosses are renowned for their ability to revive after complete desiccation, their ability to tolerate increasing climatic stress in the face of climate change is unclear. My research seeks to explore the hypothesis that desert mosses may evade the extremes of climate change by living in climatically buffered microhabitats that prolong periods of rehydration and slow desiccation rates. My first objective was to estimate the capacity of rock and shrub microhabitats to buffer moss cushions from ambient climatic conditions at the Blackbrush and Montane Zones of the NevCAN (Nevada Climate Ecohydrological Assessment Network) ecological transect in the Desert National Wildlife Refuge. At each site, we used micro-sensors (iButtons’©) to monitor temperature and humidity adjacent to 10 moss cushions located within 50-m of the station. In order to explore the influence of micro-aspect and micro-slope on microclimate, several iButtons were spatially paired with monitored mosses and their simultaneous temperature and humidity levels for comparison. A microhabitat was classified as buffered if an iButton recorded lower temperatures or higher humidity levels than simultaneous readings from the local climate tower. Future work will incorporate measurements of light levels and physiological stress response of the mosses to ascertain if statistically significant buffering of microclimates translates into a physiological buffer to the moss.

32. Interactive Effects of 1,25 - Dihydroxyvitamin D3 and Soy Protein Extract (SPE) on Oral Cancer Proliferation In Vitro is Mediated, in Part, by Expression of the Vitamin D Receptor (VDR)
Saro Oknaian, School of Dental Medicine

**Background:** Recent studies have found soy, soy extracts, and specific soy isoflavones (Genistein) demonstrate inhibitory properties against many cancers, including oral cancer. Other research has demonstrated similar effects induced by VitaminD3 (VitD). Preliminary work by this group has demonstrated interactive effects that suggest each compound may potentiate the effects of the other, thereby amplifying their anti-tumor effects.

**Objective:** Based upon this information, the primary objective of this study was to investigate the expression of the Vitamin-D receptor (VDR) in response to VitD and SPE administration, singly and in combination, in oral cancer and normal cell lines in vitro.

**Methods:** Using three oral squamous cell carcinoma cell lines (SCC15, SCC25 and CAL27) and the normal oral cell line (HGF-1), RNA was isolated from each cell line following VitD (125 nmol) and SPE (10 uM) administration at concentrations approximating the normal physiologic range. Quantitative RT-PCR was performing to determine any changes in mRNA expression for the VDR receptor over time.

**Results:** Administration of VitD appeared to modulate and increase mRNA expression of VDR in CAL27, SCC25, SCC15 and HGF-1 cell lines (1.91-, 1.88, 1.95- and 1.97-fold, respectively). In addition, SPE administration was also sufficient to induce an increase in mRNA expression of VDR in these cells (2.03-, 1.72-, 1.93-, and 1.65-fold, respectively). Moreover, the concomitant administration of VitD and SPE appeared to induce an additive effect on mRNA expression of VDR, increasing expression by 2.81-, 2.30-, 2.18- and 2.11-fold, respectively. In addition, these increases were associated with a corresponding inhibition of oral cancer proliferation that appeared to function synergistically with dual administration of SPE and VitD – although these effects were not observed in the normal cell line control. HGF-1.

**Conclusion:** Administration of VitD and SPE are sufficient to induce an increase in mRNA transcription of the VDR receptor and may function in a positive-feedback loop to activate this pathway, which appears to remain function among the normal and oral cancer cells examined in this study. However, the distinct effects of activating these pathways appear to have anti-growth effects in the cancerous cells that were not observed in the normal cell line control. This may suggest further research into the activation of VDR pathways may provide alternative mechanisms that could be utilized to control oral cancer growth without significant deleterious effects on normal cells and tissues.
33. **Lower Education and Hispanic Race Influence Quality of Care of Breast Cancer Patients and Survivors**  
Sanae El Ibrahimi and Paulo Pinheiro, School of Public Health

**Background:** Patient-healthcare provider communication is vital to ensure quality of care for cancer patients and survivors. It is unknown whether cancer patients receive equal level of quality of care.

**Methods:** We identified breast cancer patients and survivors who responded to the 2011 Cancer Self-Administered Questionnaire (CSAQ). Absence or brief discussion with patients about: follow-up of care; long-term side effects of cancer treatment; emotional or social needs; and health promotion recommendations was categorized as receiving poor quality of care. Multivariate logistic regression examined the odds of reporting receipt of quality care based on educational attainment and race.

**Results:** A total of 253 respondents reported breast cancer diagnosis, which corresponds to a weighted total of 3,156,088 patients. Poor quality of care was reported by 40% of respondents. Of these, 16% had less than a high school diploma and 9% were of Hispanic race/ethnicity. Compared to Whites, Hispanics were 18% less likely to receive quality care [adjusted odds ratio (aOR) = 0.82; 95% CI = 0.0.17-0.91]. Respondents with higher education were 5 times (aOR = 5.0; 95% CI = 2.04-12.29) and 4 times (aOR = 3.9; 95% CI = 1.36-11.17) (college and graduate degree respectively) more likely to receive quality care compared to those with lower education.

**Conclusion:** Low educational attainment and Hispanic race/ethnicity are determinants of receiving poor quality of care for breast cancer patients and survivors. It is important that the medical community be more sensitive to educational and language barriers when communicating with patients.

Presentations: National Institutes of Health headquarters, Bethesda MD, hosted by the Hispanic Serving Health Professions Schools, July 24-25 2014
34. The Effects of Locomotion-Induced Shock Loading on Tibiofemoral Bone Stress Injury
Alexa Standerfer, Karen Daun and Suzenna Ngo, Department of Physical Therapy

**Background and Purpose:** The purpose of this study is to investigate the biomechanics of the lower extremity and knee bone stress injury induced by walking, which contributes to the development of osteoarthritis (OA). As the disease develops there is damage to the joint surfaces and underlying bone, and biomechanics of the knee joint play a role in damaging this joint. Recent studies have shown that an increase in bow-legged alignment increases the load placed on the medial compartment of the knee, leading to bone stress at the joint, and creating a precipitating factor for OA.

**Subjects:** The study involves 5 male and 5 female subjects (age= 50-65 years; males=5, females=5) with no current diagnosis of OA.

**Methods:** The outcome measures taken on Day 1 are the Global Physical Activity Questionnaire (GPAQ), medical history questionnaire, dominant leg static lower extremity alignment, and dynamic peak frontal angle during locomotion. During day 2, a Magnetic Resonance Imaging (MRI) is performed on subjects before and after walking performed on treadmill. Water content present in the knee shown in the MRI will be analyzed to observe bone stress injury or bone marrow edema caused by walking.

**Results:** Our study is still currently underway, but we anticipate seeing patients with excessive bow-legged alignment to have an increase in water content in the medial compartment of the knee when their MRI is analyzed after walking.

**Discussion:** Lower extremity biomechanics will play a role in bone stress of the medial compartment of the knee joint, especially after walking.
35. **Exosome Analysis: Isolation of Oral Squamous Cell Carcinoma MicroRNA in Culture**

Brady Petersen, School of Dental Medicine

**Background:** Exosomes derived from oral cancer cells, also called Oncosomes, are membranous vesicles secreted into the surrounding extracellular environment, which are now known to regulate and modulate oral squamous cell carcinoma (OSCC) progression through the horizontal transfer of bioactive molecules, including proteins, lipids and microRNA (miRNA). To date, only one study has demonstrated the secretion of exosomes from cultured OSCC cells, which could potentially facilitate research and possible new treatment modalities.

**Objective:** Based upon this information, the primary goal of this study was to examine the potential to isolate and evaluate exosomes from oral cancer cell lines, as well as normal non-cancerous controls.

**Methods:** The OSCC cell line SCC25 and normal oral cell line HGF-1 were cultured for supernatant collection, which was subsequently centrifuged to remove all intact, but non-adherent cells. RNA was then extracted from the supernatant, as well as from the cytoplasm from each cell line.

**Results:** Molecular screening using primers specific for miRNA to miR-16, -21, -122, -133 and -155 revealed differential expression of miR-21, miR-133 and miR-155 in the cellular fraction of the OSCC cell line, with differential expression of miR-16 in HGF-1 cells. Analysis of supernatant fractions required repeated concentration via centrifugation to detect exosome miRNA, including miR-21, miR-133 and miR-155 from SCC25 supernatant but only miR-16 was detected in the supernatant from HGF-1 cells.

**Conclusions:** Because most cases of OSC are detected in advanced stages, finding a reliable, non-invasive early stage diagnostic marker would facilitate screening and increase possible treatments. This study supports the initial finding that tumor-derived exosomes can be analyzed from in vitro cell cultures, which may allow for further development of discriminatory biomarkers from other pre-malignant and malignant cell cultures that can be applied to saliva and other fluid diagnostic platforms.
36. **An Evaluation of Select Physical Activity Exercise Classes (PEX) on Markers of Bone Mineral Density**  
Tori Stone, Chase LaComb, James Navalta, Jack Young, Richard Tandy, Laura Kruskall and Patricia Alpert, Department of Kinesiology and Nutrition Sciences

The purpose of this research is to assess the efficacy of select structured physical activity classes. We intend to determine their effect on bone mineral density (BMD) as measured through Dual Energy X-Ray Absorptiometry (DEXA) scans, and analysis of biochemical markers osteocalcin and bone alkaline phosphatase (BAP). According to the National Institute of Health consensus, Osteoporosis causes premature disability in approximately 44 million people (National Institute of Health [NIH], 2001), 80% of this population being women (Ulrich, Georgiou, Gillis, & Snow, 1999). This disease causes 1.5 million fractures annually, 700,000 occurring at the spine (NIH, 2001). One prevention technique is to build bone mass in young adult life (Almstedt, Canepa, Ramirez, & Shoepe, 2011). Several publications positively correlate increases in BMD with increased exercise. BMD can be observed through DEXA scans, and monitoring biochemical markers, osteocalcin and BAP. As part of a prospective cohort study design participants will include females, ages 18-35 years, enrolled in either yoga (N=14) or cardio-kickboxing (N=14) classes provided by the University of Nevada, Las Vegas. Twelve individuals will serve as controls. Participants will provide baseline hip, spine, and total body DEXA scans, blood samples, and complete questionnaires. Participants will then be asked to return for testing after completion of the semester course to provide post DEXA scans and blood samples.
37. The Role of Mfd in Oxidative Damage Repair
Kate Porter, Amanda Prisbrey, Carmen Vallin and Eduardo A. Robleto, School of Life Sciences

Since the 1950s it has been shown that bacterial cells accumulate mutations even in non-dividing conditions. However, how this type of mutation occurs is still highly debated. This is an underestimated area of evolution because cells spend most of their time in non-replicating conditions. Recent evidence in B. subtilis suggests that transcription factor Mfd mediates the formation of mutations in stationary-phase or non-replicating cells by interacting with different repair systems. Mfd is a part of transcription coupled repair, a pathway that preferentially targets transcribed genes. Here we examine the hypothesis that Mfd mediates the formation of mutations by interacting with cellular components that repair oxidative damage. We test this hypothesis by determining whether Mfd affects cell viability after exposure to hydrogen peroxide in stationary phase. Our experiments showed the following: 1) Deficiencies in Mfd result in significant loss of cell viability after exposure to hydrogen peroxide and 2) the level of transcription in the cell modulate the effect on viability. These results are significant because they suggest that: i) oxidative damage is an intermediate in the formation of stationary-phase mutations and ii) Mfd has different roles in DNA repair and mutagenesis.

Presentation: Wind River Conference on Prokaryotic Biology, June 2014
38. Leukocyte Response and Recovery to Exercise in HCMV+ Individuals
Jared Wilson, Department of Kinesiology and Nutrition Sciences

**Introduction:** Exercise induces acute physiology changes, especially in cells of the immune system. Emerging research suggests that the lymphocyte immune response during exercise is significantly increased in individuals who are positive for human cytomegalovirus (HCMV+). Specifically, lymphocytes have been shown to increase in cell volume as exercise intensity increases and undergo a significant drop in cell volume upon the cessation of exercise. However, characterization of the monocyte and granulocyte response is unknown. HCMV, a type of herpes virus, infects 50% or more of the adult population. HCMV remains dormant in healthy individuals, but can begin to elicit symptoms when the immune system is compromised, such as after intense exercise.

**Purpose:** The purpose of this study is to characterize the lymphocyte, monocyte, and granulocyte responses to exercise in HCMV+ individuals.

**Methods:** Participants will be male and female, between the ages of 18 and 44 years old, in good health according to the American College of Sports Medicine pre-participation screening questionnaire, and be either positive for HCMV (HCMV+, dependent variable) or negative for HCMV (HCMV-, control variable). Participants will visit the lab on three separate occasions: (1) HCMV screening, (2) 100% VO2max test, (3) 80% VO2max run for 20 minutes. Blood samples will be taken during the third visits before exercise and for one hour in the post-exercise period. Independent t-tests will be used to compare leukocyte responses between the HCMV+ and HCMV- groups.
39. **Role of Race/Ethnicity and Melatonin Expression among Healthy Adults**  
Kory Grahl, School of Dental Medicine

**Background:** Many studies have evaluated the role of race and ethnicity regarding oral cancer risk, with higher risk highest among minority males. However, fewer studies have evaluated the role of melatonin disruption and dysregulation and the potential for cellular responsiveness via melatonin receptors, specifically evaluating race or ethnicity. Based upon this paucity of evidence, the main goal of this project was to evaluate healthy adult dental clinic patients.

**Methods:** Using approved Human Subjects Protocols patients provided non-stimulated saliva samples. Demographic information was also concurrently collected without specific patient identifiers. DNA and RNA were then isolated and evaluated.

**Results:** Of the 196 samples collected, 62.7% were taken from patients self-identified as White/Caucasian while 37.3% were taken from minorities. These data were significantly different from the overall clinic demographics, which suggest Whites represent only 40.8% and minorities 59.2% (X^2=196.46, d.f.=1, p<0.001). Following DNA and RNA isolation other differences were found, such as slightly higher concentrations among non-minority participants, which may have been influenced by selection bias. However, preliminary results of the melatonin receptor screening have not yet revealed any statistically significant differences based upon race or ethnicity.

**Conclusion:** Recent evidence has suggested that racial and ethnic minorities may have increased risk for oral cancer and may also have comparatively lower survival rates and reduced clinic outcomes. Although melatonin disruption and dysregulation are known to increase oral cancer risk, few studies have tried to evaluate the role of race or ethnicity with regard to tissue responsiveness. This study may be among the first to evaluate the role of race and ethnicity, specifically to evaluate the expression of receptors specific for melatonin, which may provide more specific guidelines and suggestions for racial and ethnic minorities to help reduce the incidence and severity of oral cancers.
**40. Correlation between Folate Supplementation and the Proliferation and Survival of Oral Squamous Cell Carcinomas**
John Silvaroli, School of Dental Medicine

**Background:** Although increased folate utilization and DNA hypermethylation are common features of oral cancers, less is known about the specific mechanisms associated with folate intake among these tumors. The goal of this project was to examine the role of specific folate intake receptors, including the potocytosis-mediated caveolin receptor and the human reduced folate carrier (hRFC) in oral cancers under conditions of folate supplementation.

**Methods:** Using human squamous cell carcinoma SCC15, SCC25 and CAL27 cell lines, 100 micromol folic acid (FA) and 400 micromol FA were administered in vitro to simulate the approximate normal physiologic and supplementation levels of FA found among US adults.

**Results:** The addition of FA at the physiologic and supraphysiologic levels increased oral cancer cell proliferation in a dose-dependent manner from a range of +62% in SCC25 cells to +101% in SCC15 cells and +128% in CAL27 cells – compared with +11% in HGF-1 normal oral cell line controls. RNA collected from cells at the supraphysiologic FA concentration was screened using RT-PCR, which revealed an increase in hRFC mRNA transcription in CAL27 cells of 3.1-fold, 4.8-fold in SCC15 cells, 1.6-fold in SCC25 cells, but a decrease of -0.22-fold in the normal HGF-1 cells. In addition, the addition of folate stimulated an increase in cav mRNA transcription of 3.5-fold in CAL27, 4.6-fold in SCC15, 4.1-fold in SCC25, but only 1.5-fold in HGF-1 cells.

**Discussion:** These results suggest a preferential up-regulation in mRNA transcription in both hRFC and caveolin mRNA in oral cancer lines, correlated with FA supplementation. Moreover, although a much smaller increase was observed in caveolin mRNA in the normal control, a concomitant decrease was observed in hRFC transcription. This suggests a compensatory feedback mechanism may be functioning in normal cells to regulate folate intake, which appears to be non-functional or bypassed in the oral cancer cell lines examined. These results suggest one or more of these mechanisms could be explored for their potential to limit oral cancer growth.
Posters 41 – 44: Judging at 9:00 – 10:00am
41. Alexa Bejinariu, Department of Criminal Justice
42. Erik López, Department of Sociology
43. Carolyn Willis, School of Environmental Studies and Public Affairs
44. Stacy Newman, Lindsay Lindell and Katerina Chadliev, School of Law

10:00 – 10:30am Break

Posters 45 – 48: Judging at 10:30 – 11:30am
45. Dory Mizrachi, School of Environmental Studies and Public Affairs
46. Carrie Sampson, School of Environmental Studies and Public Affairs
47. Miliakeala Heen, School of Environmental Studies and Public Affairs
48. Logan Kennedy, Department of Criminal Justice
The research reports the effects of different factors influencing jurors’ perceptions of a “domination” mitigating factor. More specifically, we manipulated the focus of mental duress that a defendant experienced and the strength of the authority figure exerting domination over the defendant. A sample of mock jurors was presented with a capital case in which a defendant was found guilty. Participants were randomly assigned to groups that received mitigating factors in which the independent variables were manipulated. More specifically, they were told that the homicide was committed because the defendant was afraid that harm would come to either himself or others he was close to, if he did not commit the crime. In addition, the threatening agent exerting domination was identified as being either a low or high authority figure. The relationship between these contextual factors and relevant personality dimensions, including locus of control and authoritarianism, are explored.
Acculturation to mainstream American culture is associated with less healthful dietary behaviors among Hispanic immigrants. Hispanics in the U.S. face higher rates of chronic conditions such as obesity and diabetes compared to non-Hispanic whites (CDC 2012). Research demonstrates that healthy dietary behaviors, like greater consumption of fruits and vegetables, can offset and reverse many chronic diseases (Van Duyn et al. 2000). In order to better address racial health disparities it is critical to increase the understanding of the association between acculturation and dietary behavior. Little is known about which measure of acculturation is most related to dietary behaviors among Hispanics in the U.S. The purpose of this research is to examine which measure of acculturation is most associated with the consumption of fruits and vegetables among Hispanic adults in the U.S. A nationally representative sample of 23,903 Hispanic adults from the 2009-2010 National Health and Nutrition Examination Survey II (NHANES II) was analyzed using a multivariate ordinary least square regression model. Results show that greater use of English at home (p < 0.05) was associated with dietary behaviors. Language spoken at home may be a better indicator of acculturation than length of time in the U.S. because it represents the explicit achievement of a new skill (i.e., the acquisition of a new language) that can further increase assimilation. Language spoken at home may capture multiple aspects of acculturation, which result in changes in dietary behaviors. This knowledge can inform public health policies in order to better address health risks among Hispanics in the U.S.

Presentation: Pacific Sociological Association Conference, April 3
43. **Attitudes and Perceptions towards Sex Tourism in Las Vegas**  
Carolyn Willis, Department of Criminal Justice

Sex tourism has become a global phenomenon in the tourism industry where individuals often travel for the purpose of sex and romance. The term “sex tourism” is a euphemism (Jeffers, 2010) often used to describe prostitution on a transnational level. Academic research and data on sex tourism are limited but highlights the idea that tourists (males and females) travel to exotic destinations in search of sex, romance, and long-term relationships. Sex tourism is the practice of participating in PAID sexual encounters with locals while on vacation. This practice is prevalent in regions where laws are absent, relaxed or not rigorously enforced. The purpose of this study was to explore and measure general attitudes, perceptions, and knowledge regarding sex tourism. Participants were asked to define sex tourism, compare it to other forms of sexual exploitation (prostitution and human trafficking), and estimate its prevalence. Scenarios were created that depicted examples of the different definitions of sex tourism from literature examine consensus. Finally, questions were asked about whether sex tourism is occurring in Las Vegas, one of the most likely sex tourism destinations in the US. Over 400 University of Nevada, Las Vegas undergraduate students were surveyed.

Presentation: American Society of Criminology, November 20, 2014
44. “Bonded Tenancy”- International Human Rights Framework
Stacy Newman, Lindsay Lindell and Katerina Chadliev, School of Law

The international human rights framework is a valuable tool for jurists to advocate on behalf of others whose rights are being infringed. Treaties like the United Declaration of Human Rights and the Convention on the Elimination of Discrimination against Women provide language and principles advocates can use to protect the interest of the globe’s most valuable people. We traveled to New Delhi, India to implement these tools, document human rights deprivations, and learn about a complex and foreign legal system. Near the end of our research, we developed a new theoretical framework regarding housing called “Bonded Tenancy”.

Women in India have historically been oppressed and continue to struggle for equal treatment. Migrant workers in New Delhi and surrounding areas are extremely concerned with the state of their housing, which frequently does not meet the international human rights standards for adequate housing. Adequate housing is the most basic of fundamental rights, and the lack of adequate housing affects other fundamental human rights.

We used the concept of Bonded Tenancy to describe migrant workers’ day-to-day living situation, where housing difficulties disproportionately affects women. Bonded tenancy describes a system where landlord collusion and a lack of enforcement traps women in a cycle of poverty. Through field interviews with several migrant women and Indian law classes at the Nehru Jawaharlal University, we developed this concept and hope to use in an appeal to the Special Rapporteur of Housing from the United Nations to investigate housing in India further.

Presentation: Presentations in New Delhi, India at Nehru Jawaharlal University, January 9, 2015
45. Understanding the Civil Protection Order Process: The Relationship between Self-Help, the Court System, and Experiential Knowledge
Dory Mizrachi, Emily I. Troshynski, Elizabeth L. MacDowell, and Amy Magnus, School of Environmental Studies and Public Affairs

Recently, civil protection orders (PO) have been touted as a common legal initiative to help alleviate intimate partner violence. Previous quantitative and evaluative research on the overall effectiveness of POs presents mixed results and qualitative projects are rare. Here, we present preliminary finding of an institutional ethnography that critically analyzes the civil protection order process for self-represented litigants (SRLs). Observation sites include self-help centers assisting SRLs with PO applications and paperwork, courtrooms where SRLs requests for POs are heard, as well as textual analyses of tracking forms and official court filings. Analysis of qualitative data will highlight a disjuncture between experiential knowledge (what has happened to the SRLs) and what becomes known throughout the process thus formally (legally) documented. Findings suggest that the justice system is unprepared to serve victimized SRLs with diverse needs. Further research is required as well as appropriate training for court practitioners.

Presentation: American Society of Criminology (ASC), November 2014
Social Science and Law Poster Session A – Ballroom
10:45 – 11:00am

46. **Expanding Educational Opportunity and Equity for English Learners: The Role of School Boards in the U.S. Mountain West**
Carrie Sampson, School of Environmental Studies and Public Affairs

Locally elected school boards in the United States are arguably the closest democratic link the public has to public education. Yet, school boards, particularly those in urban areas, oversee school districts that are increasingly diverse, complex, and often challenging in terms of performance. The purpose of this study is to examine how school boards address policies and practices for one of education’s most vulnerable populations’ English learners. Applying the conceptual framework of social construction theory for policy design, which assumes that policy is heavily influenced by the social construction of target groups, this multiple-case study includes data from 27 interviews, four years of school meeting minutes, and other archival documents from three sites located in the U.S. Mountain West Clark County School District, Salt Lake City School District, and Tucson Unified School District. Preliminary results found school boards are often pressured to address the education of English learners from outside groups, but are more concerned with how English learners negatively impact school districts, supporting policies and practices that are assimilatory and deficit-based. These findings suggest that while school boards are a significant democratic link, they are unwilling, and in some cases unable, to adequately address inequities faced by English learners.

An experiment was conducted to test the effects of evidence complexity and laboratory type on jurors’ perceptions of forensic evidence. The study specifically focused on three types of labs: public labs, private labs, and “corporate labs”. Public labs are managed by a federal, state, or local law enforcement agency, where evidence is usually analyzed internally at an agency. Private labs are those that have been formed as private businesses to provide services to federal, state, and local crime labs with overflow work. Corporate labs are managed by major retail corporations, and primarily service the needs of their store businesses, but also assist federal, state, and local agencies with overflow work and specialized cases. A national sample of mock jurors was presented with latent fingerprint evidence analyzed at 1 of the 3 types of crime labs. Evidence was presented in either a high-complexity (i.e., unfamiliar scientific language) or low-complexity (i.e., lay terms) format. Both lab type and evidence complexity were found to have significant effects on perceptions of evidence and verdict decisions. The findings are considered in the context of persuasion theories, and have implications in terms of developing best practice guidelines for forensic evidence presentation in court.

Presentation: American Society of Criminology, San Francisco, CA, November 2014
Political protests can be unpredictable, and they can lead to violence. As such, political protests represent significant challenges for police agencies. Part of the difficulty of policing these events is dealing with disgruntled participants, so tensions are high. Della Porta, Peterson, & Reiter (2006) stated that following the 1968 protest cycle, there was, “a return to the massive use of force, especially oriented toward temporary incapacitation” (pg 182). While use of force is sometimes necessary to maintain safety and order, evidence suggests that authoritarian approaches to policing crowds can instigate, rather than suppress violence. In many instance, police use of violence is correlated with the presence of injury or death. Accurately predicting the outcome of protests has the potential to help police to better prepare for these events. However, little research has been conducted to identify protest characteristics associated with violent outcomes. By using a binary logistic regression this study will examine protest factors, such as officer to protester ratio, type of protest, and protest location, to determine which are associated with violent outcomes. These findings may inform the development of political protest risk assessment instruments and assist police with planning and resource deployment.

Presentation: American Society of Criminology, November 20, 2014
Graduate & Professional Student Research Forum
Social Science
Poster Session B
UNLV Student Union Ballroom

Posters 49 – 53: Judging at 9:00 – 10:15am
49. Yulia Gavrilova, Department of Psychology
50. Levi Keach, Department of Anthropology
51. Chelcie Heaney, Department of Psychology
52. Ashley Lauzon, Department of Anthropology
53. Andrea Kayl, Department of Psychology

10:15 – 10:30am Break

Posters 54 – 57: Judging at 10:30 – 11:30am
54. Kimberly Schubert, Department of Psychology
55. AmyJane McAuley, Department of Psychology
56. Timothy McHale, Department of Anthropology
57. Laura Werner, Department Psychology
Stigma towards psychotherapy and disclosure of mental health symptoms is a challenge faced by many researchers and practitioners. This has been particularly problematic in the athletic population. Research suggests that student-athletes experience high levels of mental health symptoms and tend to underutilize mental health programs. Factors that may account for student-athletes service underutilization include the denial of emotional problems, time, social stigma, higher sensitivity to the perceptions of others, and therapists’ limited familiarity with the athletic culture. The purpose of this study was to assess the effect of two engagement strategies on student-athlete’s disclosure of the factors that interfere with their sport performance, and their mental health symptoms. The engagement as usual condition included traditional research engagement techniques and the enhanced engagement condition included components that have been shown to influence people to open up more, including normalizing, by reviewing facts from the literature, therapist’s self-disclosure, and empathy. It was hypothesized that participants in the enhanced engagement condition would disclose more information than participants in the traditional engagement condition. Participants (79 student-athletes from 20 sports; Male = 39, Female = 40; 18-24 years) were randomly assigned to one of two engagement conditions and completed the Sport Interference Checklist (SIC) and Symptom Checklist-90-Revised (SCL-90-R). Results showed no significant differences between conditions on the SCL-90-R Global Severity Scale. However, a significant difference was found in the athletes’ report of dysfunctional thoughts and stress on the SIC, suggesting that enhanced engagement strategy may facilitate greater disclosure of factors that interfere with athletic performance.

Presentation: 95th Annual Western Psychological Association in Las Vegas, NV, April 1-May 3, 2015
50. A GIS-Based Analysis of the Lithic Core Find Locations at Krittou Marottou Ais Giorkis
Levi Keach, Department of Anthropology

Today, we build most of our enduring artifacts of plastic. In the past, our enduring artifacts have been variously constructed of metals, ceramics, bones, and stones. Approximately 9,500 years ago the people of Krittou Marottou Ais Giorkis (“Ais Giorkis”) a Cypro-Pre-Pottery Neolithic-B (CPPNB) period site located in the foothills of Cyprus’s Troodos Mountains’ used chert stone extensively for their artifacts. The practice of flint knapping, the construction of stone artifacts by chipping stone, is a reductive process in which the target material is removed from a stone core, once no more material can reliably be removed the core is said to be exhausted. Almost two decades of research has produced a chipped stone record of about 300,000 pieces, including more than 2,460 cores. Beginning in 2014, these data were coded within a GIS database. This poster examines the spatial distribution of cores across Ais Giorkis for patterns between flake versus blade cores, exhausted versus non-exhausted cores, and cores of locally abundant materials versus “exotic” materials. Plotting the locations of these cores provides useful insight into the production practices and spatial use patterns of the people who once used this site.
51. GABAB Ligand Dose-Dependent Changes in Spatial Learning and Hippocampal GABAergic and Plasticity Proteins
Chelcie F. Heaney, Monica M. Bolton, Andrew S. Murtishaw, Michael A. Langhardt and Jefferson W. Kinney, Department of Psychology

The inhibitory neurotransmitter receptor, GABAB, plays a role in regulating cognitive processes. However, research has yielded mixed results regarding the extent to which altered GABAB receptor function impairs or enhances learning and memory performance. In order to better characterize the role of the GABA receptor on behavior, we compared the effect of two distinct doses of the GABA drugs baclofen and phaclofen on the performance of rats in the Morris water maze, a spatial learning task. High doses of these drugs impaired learning, whereas lower doses were slightly beneficial. We also analyzed brain tissue for alterations to specific targets in order to link any changes to performance in the behavioral task. Our data indicate that the concentrations associated with beneficial effects on learning and memory were related to changes in specific neural markers. Patients with Alzheimer’s disease or schizophrenia exhibit impaired spatial learning and memory, as well as changes to this particular receptor. Therefore, our data could indicate a potential range of appropriate function for this receptor that is associated with unimpaired spatial learning.

Presentations: American Chemical Society Southern Nevada Local Section Annual Poster Exhibition and Competition. Las Vegas, NV, November 2014
24th Neuropharmacology Conference 2014
GABAergic Signaling in Health and Disease. Washington, DC, November 2014
Society for Neuroscience. Washington, DC, November 2014
Ritual performance and those who participated in these events is a growing area of interest. Artifacts recovered from ritual areas can inform on activities that took place in and around the feature and provide information on those who participated in such events. During the 2013 excavations at the Harris Site (LA 1867), located in southwestern New Mexico, a ritual feasting pit was excavated to the south of a large communal structure, which indicates these two features may have been related in some manner. This pit feature yielded a number of artifacts including two palettes, one whole and one broken, and numerous ritually smashed corrugated and decorated vessels. Analysis focused on tool material type, the quality of manufacture and stylistic execution on tools and ceramics, and the manner in which these artifacts were used. The palettes and reconstructed vessels were also compared to other palettes and vessels from other areas of the site to potentially link this feature with specific households or corporate groups. Data recovered from these artifacts informed on questions related to the functional purposes of these artifacts, ritualistic performance, and the identity of those individuals who made and used these objects.

Presentation: 18th Biennial Mogollon Conference, October 9-11, 2014
Infants with female primary caregivers exhibit visual preferences for females over males when viewing familiar races (Quinn, et al., 2002; Quinn et al., 2008). Our research extends upon these findings to examine the malleability of these preferences. When 3-4- and 9-10-month-olds saw male and female face pairs that varied in attractiveness and race across pairs, they responded differently depending on their age and the manner in which these pairings were displayed (i.e., face-pair race randomized or blocked). Infants showed an expected preference for familiar race females when the attractiveness and race of face pairs varied randomly across trials. When infants saw face-pairs blocked by race, however, a complex interaction occurred involving infant age, face-pair attractiveness level, and display order within a block. These findings suggest the context in which stimuli are displayed impacts infants’ behavior, but it is unclear how looking changes across trials. The purpose of the current investigation was to examine the infant looking time data from the aforementioned study using recurrence quantification analysis (RQA). RQA is a nonlinear technique that allows for the discovery of patterns in data (Webber & Zbilut, 2005). We found that contextual variables seemed to have a greater influence on 3-4-month-olds than 9-10-month-olds’ looking behavior as indicated by more significant changes in their patterns of looking. Early preferences are an initial step in discovering how attention to others impacts categorical knowledge and learning of social groups, so understanding these contextual effects is important.

Presentation: Society for Research in Child Development Special Topic Meeting: Developmental Methodology, September 2014
Illicit drug use by caregivers has consistently been indicated to influence child maltreatment potential. However, investigators have not assessed the relative contribution of particular drugs on child maltreatment potential utilizing prospectively recruited carefully characterized samples and psychometrically validated assessment measures and with collateral reports in real-world settings. The current study compares the extent to which illicit hard drug use and marijuana use predict child maltreatment potential in a sample of mothers referred to behavioral treatment by Child Protective Services. Reports of illicit drug use by participating mothers were approximately 3 times higher than reports of their drug use by their family and friends, and drug use reports by mothers were more consistent with urinalysis testing than their significant others. Regression analyses showed that the mothers’ hard drug use reports (illicit drugs other than marijuana) predicted their potential to maltreat their children irrespective of social desirability, whereas reports of marijuana use by mothers were marginally predictive of their child maltreatment potential (p = .05), but only when their social desirability was controlled. Reports of the mothers’ hard drug and marijuana use by significant others were not predictive of the mothers’ child maltreatment potential. The results of this study suggest professionals need to consider hard drug use, and to a lesser extent, marijuana use, of caregivers in the protection of children, paying particular attention to self-reported use. Future research recommendations are discussed in light of the results.

Presentation: Western Psychological Association, April 24 - April 27, 2014
55. **It's all about the Timing: Investigating the Self-Report of Math Anxiety**
Amy J. McAuley, Alex M. Moore and Mark H. Ashcraft, Department of Psychology

This study examined the nature of self-report as measured by the Abbreviated Math Anxiety Scale (AMAS). We manipulated the timing of self-report, either before or after task completion. Results show typical reaction time effects in relation to math anxiety (i.e., slower high math anxious responding) when self-report was collected before the experimental task, but not after. Also, the interrelations between self-report, math achievement, and task performance depended on the report timing and the sub-factor of the AMAS. Principles from the Accessibility Model of Emotional Self-report are discussed to characterize the nature of self-report results found.

Presentation: Canadian Society for Brain Behavior and Cognitive Science, Toronto, ON July 3, 2014
56. Steroid Hormone Change in Response to Competition in Juvenile Boys  
Timothy McHale, Peter Gray, and David Zava, Department of Anthropology

We examined potential changes in salivary testosterone, cortisol, DHEA, and androstenedione in boys in response to soccer practice and soccer match play. To our knowledge, this study is the first to explore the impacts of athletic competition on salivary steroid hormone change in juvenile boy athletes. Soccer players from three different teams provided saliva samples before and after soccer practice and before and after soccer match play in Las Vegas, Nevada. All participants were aged 8 – 10 years. A paired-samples t-test and Wilcoxon signed rank sum test were applied to analyze change in hormone concentration before and after practice and before and after match play. A Friedman’s ANOVA was used to test the effects of within- versus between-group competition on steroid hormone change. Results revealed a statistically significant increase in boys’ DHEA concentrations during both match play and soccer practice. Androstenedione significantly increased during match play and approached significance during soccer practice (p = 0.056). Cortisol did not exhibit a significant increase during either condition. However, when the percent of hormone change was utilized to compare within- versus between group differences, cortisol was the only hormone that significantly increased more during the soccer match (out-group) condition in comparison to the practice (in-group) condition. No statistical analysis was available for testosterone since all but two samples were below the sensitivity of the assay. These data suggest that adrenal steroid hormone release is sensitive to competition and capable of rapid changes among juvenile boys. The adaptive significance of these findings is discussed.
57. **Cognitive Depletion: Exploring the Consequences of Having Too Many Options**  
Laura Werner, Department of Psychology

Prior research suggests that cognitive resources are undermined when a decision-maker must choose between multiple options, a phenomenon known as cognitive depletion. This study examined one possible mitigating factor for cognitive depletion, working memory capacity. To test this idea, participants were screened for working memory capacity prior to completing a decision-making task that required them to choose between a few or many everyday products. Immediately following the decision-making task, all participants completed the color-word Stroop task. Any depletion as a result of prior decision-making was expected to result in increased interference on the subsequent Stroop task. We hypothesized that (1) the high working memory capacity group would show less Stroop interference overall; (2) the simple option condition would result in less interference; and (3) working memory and number of options would interact such that the low working memory participants would be most adversely affected in the complex condition compared with the high working memory participants who are expected to be relatively unaffected by number of options. In support of our first hypotheses, we found that those with a larger working memory capacity were quicker in naming the color of color words in the Stroop task, thereby implying they experienced less interference than their counterparts. However contrary to our predictions, we found that an increase in the complexity of products did not differentially affect Stroop performance for high and low working memory participants.

Presentation: North Carolina Cognition Group: Durham, NC- 2014
Graduate & Professional Student Research Forum  
Social Science  
Poster Session C  
UNLV Student Union Ballroom  

Posters 58 – 61: Judging at 9:00 – 10:00am

58. Kathleen Larson, Department of Psychology
59. Bern Lee, Department of Psychology
60. Caryn Tegtmeyer, Department of Anthropology
61. David Weintraub, Department Psychology

10:00 – 10:30am  Break

Posters 62 – 65: Judging at 10:30 – 11:30am

62. Abigail Mayfield, Department of Psychology
63. Mark Toussaint, Department of Anthropology
64. Mandy Walsh, Department of Psychology
65. R. Shane Westfall, Department Psychology
58. **The Mental Organization of Permanent and Situational Character Attributes**  
Kathleen Larson and David Copeland, Department of Psychology

The integration of multiple concepts has been examined in the context of the fan effect, which is the finding that an increase in the number of learned associations for a concept can result in an increase in retrieval times and error rates (Anderson, 1974). However, there is typically not a fan effect when people are able to organize the related information into a single integrated situation model (Radvansky & Zacks, 1991). The goal of this project was to investigate whether readers would integrate descriptions of characters into one coherent mental representation. Specifically, the current study examined whether situational and permanent attributes (either external or internal) from multiple sentences would be stored separately or integrated. Consistent with situation model theory, all experiments showed evidence of a differential fan effect; however, in some cases, integration did not occur in patterns that were predicted. For example, while complementary external attributes that could occur simultaneously were integrated (e.g., brown hair, light skin, and overweight), people also integrated external attributes that conflicted (e.g., wearing boots, sandals, and high heels). Alternative explanations for these patterns of results are discussed.

Presentation: Psychonomic Society Annual Convention, Long, Beach California in November 2014.
59. **The Effects of Dopamine Antagonism on Reward Learning in Schizophrenia**  
Bern Lee, Sally J. Vogel, S. J. Sisk, J.K. Yao, D.P. van Kammen and Daniel N. Allen,  
Department of Psychology

**Objective:** Individuals with schizophrenia display neurocognitive deficits including deficits in reward learning; a dopamine mediated activity. However, studies of reward learning are limited because participants are often evaluated when treated with medications that are strong dopamine antagonists that would be expected to negatively impact reward learning performance. The current study addresses this matter in medicated and drug free individuals diagnosed with schizophrenia.

**Method:** Participants included a schizophrenia group stabilized on haloperidol (N = 27) and a normal control group (N = 17). Both groups were evaluated with the WCST on two occasions separated by three weeks. After the initial assessment, 13 individuals with SZ were gradually withdrawn from haloperidol in a double blind, and were drug free at the time of the second evaluation. Responses on the first four cards of the WCST were examined to assess reward learning. Data were archival and all study procedures were approved by the IRB at the time of data collection. Participants with SZ provided informed consent prior to completing any study procedures and were inpatients throughout the study.

**Results:** Mixed model ANOVA examining the group (3) by assessment (2) by WCST card (4) effects indicated a significant group by card interaction effect, such that the two schizophrenia groups had lower performance across time intervals compared to controls.

**Conclusion:** Results suggest that reinforcement learning as measured by the WCST was not affected by D2 receptor antagonism. More sophisticated neuroscience based approaches to assessment of reward learning might produce different findings, and so should be investigated in future studies.
60. **The Elite’s War: Violence and Social Coercion at Chaco Canyon and Casas Grandes (AD 900-1400)**  
Caryn Tegtmeyer, Department of Anthropology

The role of elite individuals in endemic warfare and violent coercion at Chaco Canyon (AD 900-1150) Casas Grandes (AD 1200-1400) has been an understudied area of research in the American Southwest. These large, and possibly sequential sites, were served as both ceremonial and political centers that experienced a significant growth of power and ultimately declined, and in the case of Casas Grandes, catastrophically. Both sites experienced significant population increase, material and architectural complexity, as well as an influx of migrants during the peak of their power. Despite this, there is evidence that each experiences an increase in strife, inequality and violence. Chaco Canyon, while appearing relatively peaceful, shows evidence of social coercion by a handful of elite individuals through overtly violent means, while Casas Grandes has always been considered a very violent place, experiencing periods of endemic warfare throughout its occupation. Profiles of morbidity, mortality, mortuary context and violence-related trauma were collected and compared for both of these regions and an interesting pattern emerged. This pattern suggests that while male individuals suffered from trauma and poor health, that women and children also suffered, and in some cases, were likely targeted by these elite individuals for violence and sacrifice. The role of women and children in periods of violence has rarely been speculated and this study proposes that despite not being involved in direct combat, they still suffered during periods of war.

61. **Effects of Speech Rate Context on Speech Comprehension**  
David Weintraub and Joel Snyder, Department of Psychology

It is well known that perception of small units of speech is influenced by the rate of pre- and post-speech. This effect occurs on multiple timescales. At long timescales, in particular, perception of function words (e.g., or, the) is sensitive to the average rate of a conversation-length period of speech (Baese-Berk et al., 2014). The purpose of the current study is to examine whether larger units of speech, namely sentences, are similarly sensitive to the average rate of speech at long timescales. Sentence rate was manipulated using time compression. Sentences in the fast context block were compressed to 25%, 30%, or 35% of their original duration. Sentences in the slow context block were compressed to 35%, 90%, and 110% of their original duration. Sentence comprehension decreased as a function of increasing compression rate. More importantly, comprehension was higher for 35%-compressed sentences within the fast context block compared to the same sentences in the slow context block. This effect did not occur immediately, instead emerging after several minutes of exposure to the average speech rate within a block. The results of this study suggest that comprehension of large units of speech (i.e., sentences) is affected by the average rate of a conversation-length period of speech. These results may reflect a contrastive context effect on the comprehension of speech, such that sentences spoken at relatively slow rates, compared to the average rate of sentences within a long-term context, are easier to understand.

Presentation: ARO MidWinter Meeting 2015
62. **Improvement in Executive Function Following Traumatic Brain Injury (TBI) in Children**
Abigail Mayfield, Anna Reyes, Joan Mayfield and Daniel Allen, Department of Psychology

**Objective:** Executive function deficits are common following traumatic brain injury (TBI) in children. Some reports indicate that executive function improves following TBI, although factors that contribute to recovery continue to be investigated. In this study we examine improvement in performance on the Delis’ Kaplan Executive Function System (DKEFS) Tower task, a measure of planning and problem solving abilities, at two time points following TBI to examine magnitude of improvement and associated factors.

**Method:** Participant included 32 children with TBI (Age 14.52, SD = 2.73 % male = 59.4). Based on Glasgow coma scale scores most children sustained severe brain injuries (GCS = 6.27, N = 26). Initial evaluation occurred an average of 27.4 days after injury upon admission to a rehabilitation program, and then again 57.7 days later when discharged from the program.

**Results:** Repeated measure ANOVA indicated significant improvement in DKEFS Tower performance (F = 12.872, P >001). Single sample t-tests indicated the groups performed significantly poorer than the standard sample at intake (p < .002) with no significant difference at discharge. Correlations between injury and recovery related variable with DKEFS tower performance were not significant, although Nonverbal IQ and Nonverbal Memory abilities significantly correlated with DKEFS performance at intake.

**Conclusions:** Finding suggest that improvement in executive function does occur in response to rehabilitation, although the current study was not capable of examining how practice effects may influence improvement in DKEFS scores. Future research may examine this matter further and investigate whether similar improvements occur in other areas of executive function.

Presentation: National Academy of Neuropsychology November 2014
63. Bioarchaeology of the Arabian Bronze Age: Humeral Enthesal Changes and Burial Patterns at Tell Abraq
Mark Toussaint and Debra Martin, Department of Anthropology

Tell Abraq is an archaeological site from the Arabian Bronze Age, located near the Persian Gulf Coast of the modern-day country of the United Arab Emirates. A sealed, two-chamber mud-brick tomb on site, in use from approximately 2200 – 2000 BC, yielded a 1.4-meter-thick matrix of commingled human remains, soil, and artifacts, representing a MNI of 403 individuals, of which nearly three quarters are adults. Although the remains are fragmentary, they still offer rich insights into the biocultural interactions of Bronze Age society in this population. The aim of this study was to categorize changes at the sites of major muscle attachments on the humerus, and to look for intersections of musculoskeletal stress marker category, biological sex, and burial location within the tomb at Tell Abraq. The presence or absence of specific patterns in these intersections helps to shed light on the degree of social stratification represented in the bodies of those buried in the tomb, and possibly on Bronze Age formulations of gender at this site.

Presentation pending: Society for American Archaeology, April 18, 2015
64. The Effects of Gender and Cost on Suspicion: An Evolutionary Perspective
Mandy Walsh and Murray Millar, Department of Psychology

The purpose of this study was to explore the influence of gender on suspicion towards claims made during courtship communications. It was hypothesized that participants would be more suspicious of claims made about reproductive relevant traits. To test the hypothesis, participants read a total of eight scenarios describing traits relevant to female reproduction (wealth, commitment, and child interest), traits relevant to male reproduction (physical beauty, youth, and sexual availability), and traits neutral to both genders (stargazing and game playing). After each scenario, participants indicated their suspiciousness about the veracity of the communication on five scales. As predicted, both men and women believed the neutral claim scenarios more than claims about reproductively significant traits. Women were more suspicious of communications about information highly relevant to female reproduction than of either male relevant or neutral communications, \( F = 5.83, \ p < .05 \). Similarly, men were more suspicious of communications highly relevant to male reproduction than of either female relevant or neutral communications, \( F = 7.31, \ p < .05 \). Further, consistent with the main hypothesis, these gender effects became more pronounced with high mate-value participants, \( F = 6.85, \ p < .05 \). High mate-value females were even more suspicious of information relevant to females than low mate-value females. The same results were found with males. These findings are important because they suggest suspicion may play a role in how mate-value influences the choice of reproductive strategy.

Presentation: Western Psychological Association Convention, Portland, OR, April 2014
65. The Effect of Perceived Attractiveness on Endorsement of the Just World Hypothesis
R. Shane Westfall and Murray Millar, Department of Psychology

Just-world hypothesis revolves around two key elements: that good people are rewarded and that bad people are punished. This important construct plays a significant role both in determining an individuals’ view of the world and influencing their subjective experiences within that world. Previous research has found that endorsement of the just-world hypothesis varies depending upon personality factors such as gender, wealth, and race. Typically individuals privileged by society tend to be stronger endorsers. Extending on work exploring physical attractiveness stereotypes, the current study aims to add to this body of research by examining the effect of perceived physical attractiveness of the self on endorsement of this belief. Participants completed a measure of perceived physical attractiveness as well as a measure of endorsement of the just-world hypothesis. Consistent with our predictions, our findings suggest a statistically significant relationship between physical attractiveness and belief in a just-world.

Graduate & Professional Student Research Forum

Education
Poster Session A
UNLV Student Union Ballroom

Posters 66 – 69: Judging at 8:30 – 9:30am
66. Pamela Juniel, Department of Educational & Clinical Studies
67. Cynthia Clark, Department of Teaching & Learning
68. Rachel Part, Department of Educational Psychology & Higher Education
69. Jennifer Guttman, Department of Educational Psychology & Higher Education

Posters 70 – 73: Judging at 9:30 – 10:30am
70. Cathrine Maiorca, Department of Teaching & Learning
71. Pamela Maher, Department of Teaching & Learning
72. Schetema Nealy, Department of Chemistry
73. Mary Simmons, Department of Educational & Clinical Studies

10:30 – 10:45am Break

Posters 74 – 76: Judging at 10:45 – 11:30am
74. Abeera Rehmat, Department of Teaching & Learning
75. Megan Cogliano, Department of Educational Psychology & Higher Education
76. Zachary Sanderson, Department of Teaching & Learning
Evidence-based practice standards have been present in the fields of medicine, psychology, and sociology for the past 20 years (Eddy, 2005). In education, there have been issues bridging the research-to-practice gap using evidence-based practices in special and general education settings (Cook & Odom, 2013; Gersten, Vaughn, Deschler, & Schiller, 1997). The dissemination, usage, adherence, sustainability, and fostering evidence-based practices via professional development at the district and state levels are a constant challenge (Cook, 2013; Klinger, Boardman, & McMaster, 2013).

The Council for Exceptional Children recently published the Standards for Evidence-based Practices in Special Education (Cook, Buysse, Klinger, Landrum, McWilliam, Tankersly, & Test, 2014). Currently, no data exists for researchers, practitioners, or teachers to determine which components of evidence-based practices are considered in how districts plan and design school-based professional development for general and special educators. This presentation describes a study conducted to provide empirical data on present school district considerations of the standards prescribed by CEC (2014).

Using the Standards for Evidence-based Practices in Special Education prescribed by the Council for Exceptional Children, (Cook, et. al, 2014), a survey was created and distributed to 736 professional development coordinators in small, medium, and large school districts across the United States. This survey will determine which quality indicators and classifications of evidence-based practices were considered when planning school-based professional development for general and special educators. The results of this study will provide initial empirical data regarding which aspects of evidence-based practices are prevalent and important to school districts at the national level.

Council for Exceptional Children - TED Kaleidoscope (Teacher Education Division), April 10, 2015
Pending: Council for Exceptional Children - DLD (Division for Learning Disabilities) April 9, 2015
67. **Teacher Candidate Technology Integration: For Student Learning or Instruction?**
Cynthia Clark and Shaoan Zhang, Department of Teaching & Learning

Transfer of instructional technology knowledge for student-centered learning by teacher candidates is investigated in this study. Using the transfer of learning theoretical framework, a mixed methods research design was employed to investigate whether secondary teacher candidates were able to transfer the instructional technology knowledge for student learning to their teaching in K-12 classrooms during their field experience. Data sources were Instructional Technology and Disposition surveys, classroom observations, lesson plans, and focus group interviews. It was observed that candidates were more prone to demonstrate near transfer uses of instructional technology (teacher-centered) over far transfer uses of instructional technology (student-centered) in lesson planning and teaching. The implications for teacher education programs are discussed.

**Presentation:** American Educational Research Association (AERA) 2014, April 7, 2014
68. I See You: Comparing the Effect of Asynchronous and Synchronous Video versus Text Based Communication in an Online Teacher Education Course
Rachel Part, Joe N. Crank, Rebecca Nathanson and Brittnie Watkins, Department of Educational Psychology and Higher Education

The purpose of this study was to increase the detection of non-comprehension in children with learning disabilities as a means of enhancing their communicative competence and to provide valuable information to school psychologists. It was hypothesized that children who received comprehension monitoring training would respond correctly to questions more often than children who received rephrase instruction or motivating instructions. Children who received comprehension monitoring training were more likely to answer interview questions correctly in comparison to children that received rephrase instruction or motivating instructions.

Presentation: NASP, February 19, 2015
69. A Bayesian Scale to Measure the Big-5 Personality Traits
Jennifer S. Guttman, W. Paul Jones, Hannah Berry, Isabelle Sanchez, Scott A. Loe and Tara Raines, Department of Educational Psychology & Higher Learning

The Mini-IPIP is a shortened version of the IPIP-50 measure of the Big-5 personality traits. Simulation results with an IPIP-50 dataset suggested that Bayesian adaptive scaling could enhance the Mini-IPIP without a large increase in required items. This study uses an instrument specifically designed for computer adaptive Bayesian scaling (CABS-IPIP) producing scores of high, medium, or low on each of the Big-5 traits. The purpose of this study was to examine correspondence between trait categories assigned using CABS-IPIP and IPIP-50 assignments, examine whether CABS-IPIP results have relationships with vocational personality traits in other studies, and determine the number of items required with CABS-IPIP in real-life administration.

Presentation: Association for Psychological Science May 22-25, 2014
Science, technology, engineering and mathematics (STEM) are becoming more prevalent as our society becomes more advanced. The U.S. Bureau of Labor and Statistics reported that in 2018 over 8.5 million jobs will be in STEM fields and 80% of the jobs in the future will require technology. Because our society is so dependent on STEM fields it is important that all students receive an authentic education that includes integrated STEM.

Current trends in education are requiring teachers to use a more integrated approach to teaching mathematics. Despite this trend most teachers are not aware of the benefits of using integrated STEM education to teach mathematics. The purpose of the presentation is to provide teachers with research-based practices that demonstrate how integrated STEM can be used to teach mathematics. A general description of integrated STEM education and the different ways that it can be implemented in the mathematics classroom will be provided, as well as examples of how integrated STEM education can make mathematics learning more relevant and connected to students’ lives.
71. **Two Simulation Tools to Promote Learning in Science**  
Pamela A. Maher, Janelle M. Bailey, P. G. Schrader and James Ormord, Department of Teaching & Learning

This study examines two simulation tools used in science education to answer the question, “Can simulations promote learning in science?” We compare the affordances of virtual reality headsets (VRH) with affordances offered in a fulldome planetarium. Each tool provides users with an interactive representation of a programmed environment. VRH has the ability to provide users with an interactive experience that conveys spatial relationships. VRH is used on an individual basis and until recently for gaming. The uses of the VRH are relatively unknown in traditional teaching and learning. Fulldome planetarium technology has been in use since the 20th century and offers an environment that affords multiple participants a similar experience. Both tools afford and are constrained by features inherent to their construction. We analyze each tool and its capacity for science content delivery. The research investigates how these tools facilitate development of, access to, and engagement in science concepts.

Presentation: American Association of Physics Teachers Winter Meeting, San Diego, California. January 4-6, 2015
72. Design, Development, and Delivery of the Nevada GEAR UP STEM Summer Institute
Schetema Nealy, Kristoffer Carroll, Heather Skaza, Erica Marti, Eshani Gandhi, Mehmet Dulger, Daniel Gerrity, Travis Olson, PG Schrader and MaryKay Orgill, Department of Chemistry

The Nevada State Gaining Early Awareness and Readiness for Undergraduate Programs (NV GEAR UP) project is a federally-funded, statewide project with a goal of increasing the number of underrepresented, low-income students who enter college. To meet this goal, NV GEAR UP supports middle school students’ learning in science, technology, engineering, and mathematics (STEM) subjects through services such as tutoring, STEM activities, academic advising, and professional development opportunities for their teachers. The University of Nevada, Las Vegas (UNLV) STEM leadership team has been tasked with providing NV GEAR UP middle school teachers with professional development opportunities, one of which is the 2014 GEAR UP STEM Summer Institute (STEM SI). The STEM SI aims to authentically integrate the Nevada Academic Content Standards in science, technology, engineering design, and mathematics by engaging the teachers in an interesting storyline as they attempt to answer the guiding question “What would an alien eat?” In this poster presentation, we will discuss the design, development, delivery, and initial evaluation of the SI.

Presentation: 249th ACS National Meeting & Exposition, March 22
The purpose of this research is to evaluate the number of students identified as English language learners in the state of Nevada in comparison to the number of licensed Nevada teachers who have been issued the Teaching English as a Second Language license endorsement. This has been done by examining data provided by the Nevada Department of Education including both teacher licensure and student population.

All educators have an important role to play in supporting student’s academic language development. Educators who are cognizant of the role of language while teaching and are equipped with significant tools to support teaching English Language Learners, empower those students toward academic success. Academic language is vital to the success of all students in the classroom. All educators should be engaged in teaching content including the use of academic language. The state of Nevada English Language Learner student population is relatively high in comparison to other states. This alone constitutes the need for the promotion of or the mandate for, the Teaching English as a Second Language license endorsement for every teacher.

Cultivating effective teachers of English Language Learners is a crucial step toward the promotion of consistent use of academic language in the classroom. This progressive movement will greatly influence the state of Nevada English Language Learning population producing additional data and direct future research on the importance of the use of academic language when teaching English Language Learners.
This exploratory, qualitative, multiple-case study was conducted with high school STEM teachers. This study addresses STEM teacher beliefs about the instruction of design, engineering, and technology. It further explores the impact teaching experience has on beliefs in regards to design, engineering, and technology.
75. **Does Prior Knowledge Modify the Testing Effect?**  
Megan Cogliano and CarolAnne Kardash, Department of Educational Psychology & Higher Education

We examined whether the practice testing effect is moderated by prior knowledge. Participants were 25 undergraduates. We predicted performance would differ based on students’ prior knowledge of the topics and whether items were practice quizzed prior to chapter examinations. We anticipated practice testing would be especially beneficial for topics for which students possessed low compared to high prior knowledge. Students performed better on chapter content for which they possessed high prior knowledge, and on items that were practice quizzed in comparison to items that were non-quizzed. Prior knowledge did not moderate the testing effect. Findings indicate that practice testing may be robust enough that individual differences do not affect the benefits of practice testing for classroom learning and retention.

Presentation pending: AERA, April 2015
76. Designing, Analyzing, Modifying, and Supplementing an Inclusive English Language Arts Curriculum for Gender-and-Culture-Diverse Student Populations

Zachary Sanderson, Department of Teaching & Learning

Zachary Sanderson is a graduate student in the College of Education in conjunction with Teach for America. The Human Rights Campaign Foundation in partnership with the National Education Association and the American Counseling Association present Time To THRIVE, the 2nd annual national conference to promote safety, inclusion and well-being for lesbian, gay, bisexual, transgender, and queer (LGBTQ) youth. LGBTQ youth asymmetrically face challenges that their heterosexual peers do not: family rejection, bullying, crises of identity, societal ostracization, and daily concern for safety. By engaging an expansive audience of youth-serving professionals, including educators, mental health providers, physicians, religious leaders, athletic coaches, and youth development personnel Time To THRIVE intends to create a thriving LGBTQ youth population.

Over the course of three days, the conference hosted over 50 workshops (in addition to guest lectures and speakers) that served not only as research for academic study, but also as professional development for educators. Research conducted at the conference will contribute to the Master’s Culminating Experience, “Designing, Analyzing, Modifying, and Supplementing an Inclusive English Language Arts Curriculum for Gender-and-Culture-Diverse Student Populations” as well as professional development for the Clark County School District (CCSD), the Gay, Lesbian and Straight Education Network, (GLSEN), Teach for America (TfA), and Clark County Education Association (CCEA). This Master’s Culminating Experience provides a comprehensive, holistic opportunity for English Language Arts Educators to build awareness and cultural competency, learn current and emerging best practices, and gather resources from leading experts and national organizations in the field.
Graduate & Professional Student Research Forum

*Fine Arts*

Poster Session A

UNLV Student Union Ballroom

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Posters 77 – 81: Judging at 8:45 – 10:00am

77. Melissa Avelar and Katherine Slaughter, School of Architecture
78. Audrey Barcio, Department of Art
79. Wendy Chambers, Department of Art
80. Kyle Fischer, School of Architecture
81. Maureen Halligan, Department of Art

10:00 – 10:30am Break

Posters 82 – 85: Judging at 10:30 – 11:45am

82. Elizabeth Johnson, Department of Art
83. Alfred Pulido, School of Architecture
84. Lisa Rock, Department of Art
85. Shelbi Schroeder, Department of Art
Education is a process that is constantly changing and evolving. In today’s society, that change has become more rapid as technology starts to enter its way into daily lives and even throughout the school structure. With the advances of technology, there has become a need to adapt to those changes within the classroom as newer teaching trends have started to arise from the incorporation of technology. With that being said, how have these new teaching trends changed the way the physical environment of the classroom is transforming? From project based learning, to 21st century skills, to flipped classrooms and beyond, these new trends and ideas have reshaped the existing ideas of space as classroom sizes are changing, the number of students, the tools they are using, and even the sounds they are making in classrooms that relying on a singular model may not be as effective as it used to. Our goal is to examine these new teaching trends, their pedagogies, and the tools they use to begin to predict what a classroom may look like in the next two decades. As graduate architecture students, we feel there is a need to reexamine the traditional model of classrooms and understand that technological advancement may now be informing how classrooms are designed. Through extensive research, we have compiled an Ed-Spec book for the classrooms of the future.
78. **Infinite Reflection**  
Audrey Barcio, Department of Art

Barcio investigates the theme of infinity through art. Viewers encounter their own infinite reflection with two double triangle mirrors hung on opposite walls. The mirrors offer an ongoing illusion of reflection with repeated frames extending into space. Immersed in the middle, the natural gesture of the selfie ensues, followed with a post to the Internet, repeating infinite interaction around the world.
79. Transformations of Flesh in Oil Paint
Wendy Chambers, Department of Art

The funding I received through GPSA has enabled me to purchase the fundamental oil painting materials required for my practice as an MFA in the Art Department. These materials include specific colors and quantities of oil paint that allow me to create the desired paintings without limitation. My goal is to create large scale realistic paintings that acknowledge the transformations that the human body and flesh undergoes as it ages and decays. This concept is expressed through the use of oil paint, which lends itself to the rendering of flesh as it successfully mimics and emphasizes the nature of corporeal subjects. Oil paint is exceptionally well suited to building layers of paint, which is crucial to my practice of elevating the layers, folds, and forms of flesh.

The large scale of the paintings “reaching 6ft in length or width” is essential to emphasizing both the materiality of the body and of the oil paint. I feel that working at this size is fundamental to creating powerful paintings that will leave the most lasting effect on the viewer. My paintings result in images that are confrontational, yet seduce the eye with subtle and sophisticated color relationships. Through this practice, I create paintings that acknowledge the transformations of the corporeal self.
As more and more jurisdictions begin to approve commercial casino gambling, there becomes a need to better understand their effects on the local economy. Casinos can undoubtedly supply jobs and bring in out of state revenues through tourism, but often times do so at the expense of local business and infrastructure. For example, casinos generally face inward, keeping pedestrian activity off the street and on the casino floor which in turn results in barren city streets. They can also cannibalize local business, operating at or below cost to attract guests in hopes that they’ll spend money gambling. While casinos can bring much to a city, they can take just as much away. In the end, the actual contribution from a casino lies in how well it integrates with the local community.

Following a brief literature review, this study applies urban theories to two different casino types, urban and suburban. The size and program for each model were determined through analyzing 56 different casinos in Las Vegas. Each model was placed on a potential site and then run through a series of alterations. Each of the alteration were then critiqued and presented further design solutions. The goal of this simulation was to better understand the impact that casinos have on the built environment. Although no single solution could be determined, the study resulted in a number of best practices that should be considered in the future development of a community integrated resort.
81. **Grounds for Abstraction: Large Scale Abstractions on Development**
Maureen Halligan, Department of Art

My research project is a fine arts exploration of large-scale paintings using colored gesso (ground) and vinyl paint that will enhance my understanding of the qualities of these materials, as well as reinforcing my discussion about urban sprawl, the Las Vegas landscape, and metropolitan areas in the paintings. I specifically work with this subject matter as a means to explore abstraction, and alternative painting media, while engaging the public in discussions on land use and development by means of abstractions, patterns, and relatable colors. My process is procedure oriented by building layers, pushing materials to their limits, and attempting to communicate the nature of developments and construction in the way that I paint. I am exploring the use of Holbein Acryla Colored Gesso as well as a vinyl based paint, Flashe, on large scale paintings that will be visually addressing the patterns related to suburban sprawl through abstraction. Both media are well suited to large scale paintings because of their matte finish and retain visual qualities that are highly reflective of the Las Vegas landscape - the Strip, the sprawl, and the desert alike. These works will be on view in various shows around Las Vegas, as well as being an integral part of my Thesis exhibition in Spring 2016.
82. Expressing and Celebrating Queer Culture through Art
Elizabeth Johnson, Department of Art

My goals are to explore the female orgasms between two lesbians in the midst of intercourse through art. I will express muscular contractions of pleasure from arousal to post climax in an abstract and metaphysical performance piece. A female orgasm is unique upon itself and only heightened in complexity when it happens during the inner intimacy between two women. Muscles tighten in this experience while blood and tensions build up during sexual arousal. The orgasm reverses this process through a series of rhythmic muscle contractions. The body is released of tension and returns to its prearousal state. The rhythmic values of the female to female orgasm can best be represented by a series of moments or a set of steps, and thus I believe the female orgasm can only be presented in this abstract expression through performance.

My research will include the use of high quality micro inspection cameras. These items will be major components to my research. I have added three various size cameras in my itemized list. This will give me three different perspectives per vagina. In total, I will have six different films of the internal tension to the release in sexual pleasure. Each of which will enable me to explore and create my abstract representation of the intimacy of orgasm between lesbians. The internal examination of this female-to-female orgasm will be necessary to understand the dynamics that will transcend into a fluid performance so people may observe something that is normally hidden to the naked eye.
83. **Emphasizing Entertainment and Esthetic Aspects of Edible Rooftop Gardens Produces Development Opportunities in Sync with Las Vegas Resort Objectives: Re-envisioning the Sands Expo Roofscape**
Alfred Pulido, School of Architecture

My proposal is focused on studying the economic benefits from an edible rooftop garden. Within this proposal the objective is to examine and compare the current embodied energy that it takes to import produce with a recommended edible green roof system that would allow casinos to harvest their own produce. By comparing the annual capital costs from imported to locally grown food we can possibly determine if an edible roof garden is a practical option for casinos.

According to Jennifer Hughes, Edible rooftop gardens are a new and innovative way to help benefit communities, building owners, and the environment through commercial scale hydroponic on urban rooftop farms. It is a form of growing local edible vegetation that reduces or eliminates the negative effects of importing outsourced produce, and allows the user to closely monitor the production of a healthier organic product.

One of the concerns is that Las Vegas has a great demand for imported goods, which are essential to accommodate the immense traffic of tourists, thus causing high emissions and waste byproducts as a direct result of food import.

By incorporating edible rooftop gardens in Las Vegas Casinos I want to understand the overall economic impact of this new practice. The majority of casinos have flat empty spaces that are not being utilized. With a suggested approach for an edible rooftop garden, the potential is to evaluate the economic benefits that would show a worth of this investment and take into account of the prosperity of the environment.
84. Decorative Imagery: Shaping our Visual Landscape
Lisa Rock, Department of Art

My work explores the decorative imagery that shapes our visual landscape. From textiles to signage and from the handmade to the mechanically produced, the decorative often becomes overlooked due to the immense amount of imagery we encounter on a daily basis. By taking samples from things observed in my surroundings I begin to draw out interesting moments that can be lost in our over saturated visual culture. By layering I am able to simulate how these images present themselves in the everyday. A painting can start by taking cues from a jumble of patterned clothes on a bedroom floor, a mash-up of billboards, or a layering of windows on a computer screen combining all this with remnants of the painting process to create a whole new image or simply reframing appropriated imagery.

The work takes form in a variety of media. I use acrylic and oil paints to create non-representational paintings often using stenciling to produce flat graphic imagery. I also use dye on silk to explore the relationship between craft and art. The imagery on silk is usually of painterly marks which examines the question of what is painting and is it still painting if it takes the form of something that can be either worn or hung on the wall. I also work with screen printing which is a printmaking technique that always me to create multiples and repeats of imageries and gives me the ability to layer images quickly.
85. **Instax Body Project**  
Shelbi Schroeder, Department of Art

In my recent work, I am exploring the connection between the body and the mind and how this connection influences the ability to overcome self-doubt. In a society that is overrun with imagery, there is a lot of pressure to look a certain way and I have been exploring the effects this has on the self-esteem of young adults. In March of 2012, I started testing my hypothesis using my own body. I am interested in testing several ways to disconnect the mind from being defined by body. I began my study by taking a daily nude self-portrait. I saw my body so many times I was able to surrender my habit of defining “self” by my body. I saw and felt positive results from this test. By testing my hypothesis on more than just myself I will be able to see if this idea can become a theory.

I currently have six participants who have committed to taking a daily nude image for three months. Through previous sponsorship with the Graduate & Professional Student Association, I was able to provide a Fuji Film Instax camera as well as three months’ worth of film, and a journal. I am asking them to write the date on each image and to write in the journal when they feel it is needed. In August 2014, the first round of participants will be done and I will then be sending out the camera to a second round of participants who will be conducting this project for a period of six months ending in March of 2015. It is my hope that these participants become accepting of their body in this project.

Presentation: Exhibition, Grant Hall Gallery on the UNLV Campus April 12 – 19, 2015
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avelar, Melissa</td>
<td>232</td>
</tr>
<tr>
<td>Abdalla, Amro</td>
<td>144</td>
</tr>
<tr>
<td>Adibelli, Elif</td>
<td>132</td>
</tr>
<tr>
<td>Adkins, Amy Beth</td>
<td>133</td>
</tr>
<tr>
<td>Alvarado, Israel</td>
<td>167</td>
</tr>
<tr>
<td>An, Wei</td>
<td>71</td>
</tr>
<tr>
<td>Arar, Monique</td>
<td>58</td>
</tr>
<tr>
<td>Bain, Wyatt</td>
<td>49</td>
</tr>
<tr>
<td>Baker, Jonathan</td>
<td>55</td>
</tr>
<tr>
<td>Barcio, Audrey</td>
<td>233</td>
</tr>
<tr>
<td>Bartel, Kristyne</td>
<td>171</td>
</tr>
<tr>
<td>Bartlett, Courtney</td>
<td>146</td>
</tr>
<tr>
<td>Batilov, Iani</td>
<td>145</td>
</tr>
<tr>
<td>Baxter, Nicholas</td>
<td>110</td>
</tr>
<tr>
<td>Bejinariu, Alexa</td>
<td>190</td>
</tr>
<tr>
<td>Bhaduri, Moinak</td>
<td>35</td>
</tr>
<tr>
<td>Biesiada, Anaeita</td>
<td>100</td>
</tr>
<tr>
<td>Birds, Jonathan</td>
<td>102</td>
</tr>
<tr>
<td>Bishop, Melissa</td>
<td>150</td>
</tr>
<tr>
<td>Bockman, Paige</td>
<td>70</td>
</tr>
<tr>
<td>Bolton, Monica</td>
<td>73</td>
</tr>
<tr>
<td>Boppre, Breanna</td>
<td>126</td>
</tr>
<tr>
<td>Brackett, Aurora</td>
<td>59</td>
</tr>
<tr>
<td>Bradley, Jonathan</td>
<td>117</td>
</tr>
<tr>
<td>Brown, Jennifer</td>
<td>169</td>
</tr>
<tr>
<td>Bukhary, Syeda Saria</td>
<td>149</td>
</tr>
<tr>
<td>Chadliev, Katerina</td>
<td>193</td>
</tr>
<tr>
<td>Chambers, Wendy</td>
<td>234</td>
</tr>
<tr>
<td>Chameroy, Eric</td>
<td>28</td>
</tr>
<tr>
<td>Chang, Ecsile</td>
<td>173</td>
</tr>
<tr>
<td>Chen, Chao</td>
<td>52</td>
</tr>
<tr>
<td>Clark, Theresa Ann</td>
<td>172</td>
</tr>
<tr>
<td>Clark, Cynthia</td>
<td>221</td>
</tr>
<tr>
<td>Claudat, Kimberly</td>
<td>76</td>
</tr>
<tr>
<td>Cogliano, Megan</td>
<td>229</td>
</tr>
<tr>
<td>Conner, Christopher</td>
<td>110</td>
</tr>
<tr>
<td>Cook, Denise</td>
<td>115</td>
</tr>
<tr>
<td>Coupé, Austin</td>
<td>178</td>
</tr>
<tr>
<td>Crespin, Alicia</td>
<td>29</td>
</tr>
<tr>
<td>Crisp, Alexis</td>
<td>31</td>
</tr>
<tr>
<td>Dassopoulos, Andrea</td>
<td>125</td>
</tr>
<tr>
<td>Decker, Laura</td>
<td>135</td>
</tr>
<tr>
<td>Dema, Alexandra</td>
<td>136</td>
</tr>
<tr>
<td>DeVaul, Lina</td>
<td>138</td>
</tr>
<tr>
<td>DiBenedetto, Katelyn</td>
<td>72</td>
</tr>
<tr>
<td>Dick, Jessica</td>
<td>174</td>
</tr>
<tr>
<td>Dulger, Mehmet</td>
<td>139</td>
</tr>
<tr>
<td>El Ibrahimi, Sanae</td>
<td>181</td>
</tr>
<tr>
<td>Erlingsson, Haftor</td>
<td>128</td>
</tr>
<tr>
<td>Eugenis, Katherine</td>
<td>117</td>
</tr>
<tr>
<td>Famoush, Michelle</td>
<td>175</td>
</tr>
<tr>
<td>Fischer, Kyle</td>
<td>235</td>
</tr>
<tr>
<td>Friedel, Craig</td>
<td>103</td>
</tr>
<tr>
<td>Gainey, Seth</td>
<td>51</td>
</tr>
<tr>
<td>Galloway, Lauren</td>
<td>112</td>
</tr>
<tr>
<td>Gavrilova, Yulia</td>
<td>200</td>
</tr>
<tr>
<td>Gedo, Sara</td>
<td>53</td>
</tr>
<tr>
<td>Gentry, Amanda</td>
<td>156</td>
</tr>
<tr>
<td>Gharehdaghimollahajloo, Samad</td>
<td>151</td>
</tr>
<tr>
<td>Gourrier, Al</td>
<td>105</td>
</tr>
<tr>
<td>Grahl, Kory</td>
<td>187</td>
</tr>
<tr>
<td>Greenwood, Joshua</td>
<td>32</td>
</tr>
<tr>
<td>Guttmann, Jennifer</td>
<td>223</td>
</tr>
<tr>
<td>Halligan, Maureen</td>
<td>236</td>
</tr>
<tr>
<td>Hammond, Krystal</td>
<td>74</td>
</tr>
<tr>
<td>Harrington, Anthony</td>
<td>34</td>
</tr>
<tr>
<td>Harry, John</td>
<td>168</td>
</tr>
<tr>
<td>Hartel, Caldonia</td>
<td>172</td>
</tr>
<tr>
<td>Hartman, Jessica</td>
<td>50</td>
</tr>
<tr>
<td>Heaney, Chelcia</td>
<td>202</td>
</tr>
<tr>
<td>Heen, Miliakeala</td>
<td>196</td>
</tr>
<tr>
<td>Henceroth, Nathan</td>
<td>120</td>
</tr>
<tr>
<td>Homtong, Nudthawud</td>
<td>159</td>
</tr>
<tr>
<td>Hu, Qingting</td>
<td>114</td>
</tr>
<tr>
<td>Izzo, Antoinette</td>
<td>75</td>
</tr>
<tr>
<td>Jarvi, Forrest</td>
<td>77</td>
</tr>
<tr>
<td>Jazaei, Robabeh</td>
<td>153</td>
</tr>
<tr>
<td>Johnson, Elizabeth</td>
<td>237</td>
</tr>
<tr>
<td>Juniel, Pamela</td>
<td>220</td>
</tr>
<tr>
<td>Kayl, Andrea</td>
<td>204</td>
</tr>
<tr>
<td>Keach, Levi</td>
<td>201</td>
</tr>
<tr>
<td>Kennedy, Logan</td>
<td>197</td>
</tr>
<tr>
<td>Kha, Cindy</td>
<td>44</td>
</tr>
<tr>
<td>Kumanchik, Jenni</td>
<td>33</td>
</tr>
<tr>
<td>Larson, Kathleen</td>
<td>210</td>
</tr>
<tr>
<td>Lauzon, Ashley</td>
<td>203</td>
</tr>
<tr>
<td>Lee, Bern</td>
<td>211</td>
</tr>
<tr>
<td>Lee, Sungchul</td>
<td>147</td>
</tr>
<tr>
<td>Lee-Tataseo, Cindy</td>
<td>166</td>
</tr>
<tr>
<td>Liddell, Lindsay</td>
<td>193</td>
</tr>
<tr>
<td>Long, Joleen</td>
<td>60</td>
</tr>
<tr>
<td>López, Erick</td>
<td>191</td>
</tr>
<tr>
<td>Name</td>
<td>Page</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Macfarlane, Rachel</td>
<td>113</td>
</tr>
<tr>
<td>MacIntosh, Sara Raffae</td>
<td>90</td>
</tr>
<tr>
<td>Maher, Pamela</td>
<td>225</td>
</tr>
<tr>
<td>Maiorca, Cathrine</td>
<td>224</td>
</tr>
<tr>
<td>Marti, Erica</td>
<td>48</td>
</tr>
<tr>
<td>Martinez, Matthew</td>
<td>80</td>
</tr>
<tr>
<td>Masaki, Erika</td>
<td>124</td>
</tr>
<tr>
<td>Mast, Daniel</td>
<td>148</td>
</tr>
<tr>
<td>Mayfield, Abigail</td>
<td>214</td>
</tr>
<tr>
<td>McAuley, AmyJane</td>
<td>206</td>
</tr>
<tr>
<td>McGilligan, Clancy</td>
<td>61</td>
</tr>
<tr>
<td>McGinn, Donald</td>
<td>45</td>
</tr>
<tr>
<td>McHale, Timothy</td>
<td>207</td>
</tr>
<tr>
<td>Miller, Kayla</td>
<td>62</td>
</tr>
<tr>
<td>Miyose, Colby</td>
<td>99</td>
</tr>
<tr>
<td>Mizrachi, Dory</td>
<td>194</td>
</tr>
<tr>
<td>Mohammed Abdul, Ata Ur Rahman</td>
<td>30</td>
</tr>
<tr>
<td>Moncrieff, Michael</td>
<td>82</td>
</tr>
<tr>
<td>Moynihan, Stefanie</td>
<td>96</td>
</tr>
<tr>
<td>Murtishaw, Andrew</td>
<td>81</td>
</tr>
<tr>
<td>Nave-Blodgett, Jessica</td>
<td>84</td>
</tr>
<tr>
<td>Nealy, Schetema</td>
<td>226</td>
</tr>
<tr>
<td>Nelson, Alex</td>
<td>83</td>
</tr>
<tr>
<td>Newman, Stacy</td>
<td>193</td>
</tr>
<tr>
<td>Nordin, Andrew</td>
<td>41</td>
</tr>
<tr>
<td>Oganesyan, Rafael</td>
<td>116</td>
</tr>
<tr>
<td>Oknaian, Saro</td>
<td>180</td>
</tr>
<tr>
<td>Oldenkamp, Camilla</td>
<td>63</td>
</tr>
<tr>
<td>Overholser, Amber</td>
<td>104</td>
</tr>
<tr>
<td>Parreira, Christina</td>
<td>123</td>
</tr>
<tr>
<td>Part, Rachel</td>
<td>222</td>
</tr>
<tr>
<td>Petersen, Brady</td>
<td>183</td>
</tr>
<tr>
<td>Picker, Michael</td>
<td>38</td>
</tr>
<tr>
<td>Pirbastami, Sogol</td>
<td>56</td>
</tr>
<tr>
<td>Pollard, Derek</td>
<td>64</td>
</tr>
<tr>
<td>Porter, Katelyn</td>
<td>185</td>
</tr>
<tr>
<td>Pour Yazdanpanahm, Ali</td>
<td>152</td>
</tr>
<tr>
<td>Prisbrey, Amanda</td>
<td>39</td>
</tr>
<tr>
<td>Pulido, Alfred</td>
<td>238</td>
</tr>
<tr>
<td>Rakhkovskaya, Liya</td>
<td>86</td>
</tr>
<tr>
<td>Rehmat, Abeera</td>
<td>228</td>
</tr>
<tr>
<td>Riggelman, Samantha</td>
<td>137</td>
</tr>
<tr>
<td>Rissman, Moritz</td>
<td>111</td>
</tr>
<tr>
<td>Robison, Rebecca</td>
<td>65</td>
</tr>
<tr>
<td>Rock, Lisa</td>
<td>239</td>
</tr>
<tr>
<td>Roebuck, Keivan</td>
<td>103</td>
</tr>
<tr>
<td>Ross, Emma</td>
<td>91</td>
</tr>
<tr>
<td>Russell, Alexander</td>
<td>179</td>
</tr>
<tr>
<td>Sahl, Allison</td>
<td>121</td>
</tr>
<tr>
<td>Sakiyama, Mari</td>
<td>122</td>
</tr>
<tr>
<td>Saladino, Caitlin</td>
<td>140</td>
</tr>
<tr>
<td>Sampson, Carrie</td>
<td>195</td>
</tr>
<tr>
<td>Sanderson, Zachary</td>
<td>230</td>
</tr>
<tr>
<td>Santoyo, Christina</td>
<td>141</td>
</tr>
<tr>
<td>Schafer, Tyler</td>
<td>109</td>
</tr>
<tr>
<td>Schroeder, Shelbi</td>
<td>240</td>
</tr>
<tr>
<td>Schubert, Kimberly</td>
<td>205</td>
</tr>
<tr>
<td>Sharma, Surbhi</td>
<td>40</td>
</tr>
<tr>
<td>Shrestha, Kishor</td>
<td>54</td>
</tr>
<tr>
<td>Shrestha, Sichu</td>
<td>158</td>
</tr>
<tr>
<td>Silvaroli, John</td>
<td>188</td>
</tr>
<tr>
<td>Simmons, Mary</td>
<td>227</td>
</tr>
<tr>
<td>Siska, Emily</td>
<td>157</td>
</tr>
<tr>
<td>Slaughter, Katherine</td>
<td>232</td>
</tr>
<tr>
<td>Smith, Kevin</td>
<td>101</td>
</tr>
<tr>
<td>Sanderfer, Alexa</td>
<td>182</td>
</tr>
<tr>
<td>Steiner, Michael</td>
<td>160</td>
</tr>
<tr>
<td>Stone, Tori</td>
<td>184</td>
</tr>
<tr>
<td>Stout, Kelly</td>
<td>108</td>
</tr>
<tr>
<td>Suh-Lee, Candace</td>
<td>162</td>
</tr>
<tr>
<td>Sylva, Jason</td>
<td>161</td>
</tr>
<tr>
<td>Tamaddun, Kazi</td>
<td>163</td>
</tr>
<tr>
<td>Tegtmeyer, Caryn</td>
<td>212</td>
</tr>
<tr>
<td>Thomson, Joseph</td>
<td>98</td>
</tr>
<tr>
<td>Tica, Christina</td>
<td>85</td>
</tr>
<tr>
<td>Toussaint, Mark</td>
<td>215</td>
</tr>
<tr>
<td>Trevathan, Michael</td>
<td>129</td>
</tr>
<tr>
<td>Turgut, Refika</td>
<td>132</td>
</tr>
<tr>
<td>Vallin, Carmen</td>
<td>42</td>
</tr>
<tr>
<td>Vanden Bosch der Nederlanden, C.</td>
<td>93</td>
</tr>
<tr>
<td>Villanueva, Ann Michelle</td>
<td>66</td>
</tr>
<tr>
<td>Volsche, Shelly</td>
<td>87</td>
</tr>
<tr>
<td>Walker, Bob</td>
<td>142</td>
</tr>
<tr>
<td>Walsh, Mandy</td>
<td>216</td>
</tr>
<tr>
<td>Watanabe, Kenneth</td>
<td>43</td>
</tr>
<tr>
<td>Watkins, Brittnie</td>
<td>134</td>
</tr>
<tr>
<td>Weber, Denise</td>
<td>67</td>
</tr>
<tr>
<td>Weintraub, David</td>
<td>213</td>
</tr>
<tr>
<td>Werner, Laura</td>
<td>208</td>
</tr>
<tr>
<td>Westfall, R. Shane</td>
<td>217</td>
</tr>
<tr>
<td>Whitmer, Jennifer</td>
<td>127</td>
</tr>
<tr>
<td>Willis, William</td>
<td>92</td>
</tr>
<tr>
<td>Willis, Carolyn</td>
<td>192</td>
</tr>
<tr>
<td>Wilson, Jared</td>
<td>186</td>
</tr>
</tbody>
</table>
INDEX

Wolffis, Jarod.................................164
Wonder, Kaylee .........................170
Woods, Aaron ........................... 94
Zink, Davor ............................... 95
The Graduate & Professional Student Research Forum is co-hosted 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.
# 2015 Graduate & Professional Student Research Forum
## Schedule of Events

*Abstracts at a glance*  

<table>
<thead>
<tr>
<th>Platform Sessions</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 11:30am Science Session A: room 205</td>
<td>27 – 35</td>
</tr>
<tr>
<td>9:00 – 11:30am Science Session B: room 207</td>
<td>37 – 45</td>
</tr>
<tr>
<td>8:45 – 11:30am Science and Engineering Session C: room 208A</td>
<td>47 – 56</td>
</tr>
<tr>
<td>8:45 – 11:45am Humanities and Fine Arts Session A: room 208B</td>
<td>57 – 67</td>
</tr>
<tr>
<td>9:00 – 11:30am Social Science Session A: room 208C</td>
<td>69 – 77</td>
</tr>
<tr>
<td>9:00 – 11:30am Social Science Session B: room 209</td>
<td>79 – 87</td>
</tr>
<tr>
<td>9:15 – 11:30am Social Science Session C: room 211</td>
<td>89 – 96</td>
</tr>
<tr>
<td>9:00 – 11:30am Social Science and Law Session D: room 213</td>
<td>97 – 105</td>
</tr>
<tr>
<td>8:30 – 11:30am Social Science Session E: room 218</td>
<td>107 – 117</td>
</tr>
<tr>
<td>8:30 – 11:30am Social Science Session F: room 219</td>
<td>119 – 129</td>
</tr>
<tr>
<td>8:30 – 11:30am Education Session A: room 222</td>
<td>131 – 142</td>
</tr>
</tbody>
</table>

*Poster Sessions*

<table>
<thead>
<tr>
<th>Poster Sessions</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:45 – 10:00am Science and Engineering Session A: Ballroom Posters 1 – 5</td>
<td>143 – 148</td>
</tr>
<tr>
<td>10:15 – 11:30am Posters 6 – 10</td>
<td>149 – 153</td>
</tr>
<tr>
<td>8:45 – 10:00am Science and Engineering Session B: Ballroom Posters 11 – 15</td>
<td>155 – 160</td>
</tr>
</tbody>
</table>
## 2015 Graduate & Professional Student Research Forum
### Schedule of Events

<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>10:30 – 11:30am</td>
<td>Science and Engineering Session B: Ballroom (cont.)</td>
<td>161 – 164</td>
</tr>
<tr>
<td>Posters 16 – 19</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:45 –10:00am</td>
<td>Science and Health Science Session C: Ballroom</td>
<td>165 – 170</td>
</tr>
<tr>
<td>Posters 20 – 24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15 – 11:30am</td>
<td></td>
<td>171 – 175</td>
</tr>
<tr>
<td>Posters 25 – 29</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30 – 10:00am</td>
<td>Science and Health Science Session D: Ballroom</td>
<td>177 – 183</td>
</tr>
<tr>
<td>Posters 30 – 35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:15 – 11:30am</td>
<td></td>
<td>184 – 188</td>
</tr>
<tr>
<td>Posters 36 – 40</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00 – 10:00am</td>
<td>Social Science and Law Session A: Ballroom</td>
<td>189 – 193</td>
</tr>
<tr>
<td>Posters 41 – 44</td>
<td></td>
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</tr>
<tr>
<td>10:30 – 11:30am</td>
<td></td>
<td>194 – 197</td>
</tr>
<tr>
<td>Posters 45 – 48</td>
<td></td>
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<tr>
<td>9:00 – 10:15am</td>
<td>Social Science Session B: Ballroom</td>
<td>199 – 204</td>
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<tr>
<td>Posters 49 – 53</td>
<td></td>
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<tr>
<td>10:30 – 11:30am</td>
<td></td>
<td>205 – 208</td>
</tr>
<tr>
<td>Posters 54 – 57</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:00 – 10:00am</td>
<td>Social Science Session C: Ballroom</td>
<td>209 – 213</td>
</tr>
<tr>
<td>Posters 58 – 61</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 – 11:30am</td>
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<td>214 – 217</td>
</tr>
<tr>
<td>Posters 62 – 65</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:30 – 9:30am</td>
<td>Education Session A: Ballroom</td>
<td>219 – 223</td>
</tr>
<tr>
<td>Posters 66 – 69</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9:30 – 10:30am</td>
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<td>224 – 227</td>
</tr>
<tr>
<td>Posters 70 – 73</td>
<td></td>
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</tr>
</tbody>
</table>
## 2015 Graduate & Professional Student Research Forum
### Schedule of Events

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Pages</th>
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</thead>
<tbody>
<tr>
<td>10:45 – 11:30am</td>
<td>Education Session A: Ballroom (cont.)</td>
<td>228 – 230</td>
</tr>
<tr>
<td>Posters 74 – 76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8:45 – 10:00am</td>
<td>Fine Arts A: Ballroom</td>
<td>231 – 236</td>
</tr>
<tr>
<td>Posters 77 – 81</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10:30 – 11:30am</td>
<td></td>
<td>237 – 240</td>
</tr>
<tr>
<td>Posters 82 – 85</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Index</td>
<td></td>
<td>241 – 243</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Noon – 1:30pm</th>
<th>Luncheon and Awards Ceremony</th>
<th>Ballroom</th>
</tr>
</thead>
</table>
### 2015 Graduate & Professional Student Research Forum at a Glance

#### Science Platform Session A: Room 205

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter(s)</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>Facilitation and Competition within Joshua Tree (<em>Yucca brevifolia</em>) - Spiny hopsage (<em>Grayia spinosa</em>) Nurse-Plant Associations. <strong>Author:</strong> Eric Chameroy, School of Life Sciences</td>
<td><strong>Author:</strong> Eric Chameroy, School of Life Sciences</td>
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</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Analyzing Caterpillar-Ant Interactions in Three Butterfly Species of the Mojave Desert: Are Caterpillars Buying Protection or Appeasing Potential Predators? <strong>Author:</strong> Alicia Crespin, School of Life Sciences</td>
<td><strong>Author:</strong> Alicia Crespin, School of Life Sciences</td>
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</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>Beryllium: A Simple Metal Cation with Possible Therapeutic Potential towards Type II Diabetes and Various Cancers. <strong>Author:</strong> Ata Ur Rahman Mohammed Abdul, Department of Chemistry</td>
<td><strong>Author:</strong> Ata Ur Rahman Mohammed Abdul, Department of Chemistry</td>
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</tr>
<tr>
<td>9:45 – 10:00am</td>
<td>A Tubular 3D Force Analysis of Kangaroo Rat Burrowing. <strong>Author:</strong> Alexis Crisp, School of Life Sciences</td>
<td><strong>Author:</strong> Alexis Crisp, School of Life Sciences</td>
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<tr>
<td>10:00 – 10:30am</td>
<td><strong>Break</strong></td>
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<tr>
<td>10:30 – 10:45am</td>
<td>A Life Spent Dry: Interactive Effects of Age, Sex, Genotype and Rate of Drying Upon Survival in the Desert Moss <em>Bryum argenteum</em>. <strong>Author:</strong> Joshua Greenwood, School of Life Sciences</td>
<td><strong>Author:</strong> Joshua Greenwood, School of Life Sciences</td>
<td></td>
</tr>
<tr>
<td>10:45 – 11:00am</td>
<td>Acute Effects of Dynamic Compression on Heart Rate Variability and Peak Heart Rate while Running. <strong>Authors:</strong> Jenni Kumanchik, John A. Mercer and W.A. Sands, Department of Kinesiology and Nutrition Sciences</td>
<td><strong>Authors:</strong> Jenni Kumanchik, John A. Mercer and W.A. Sands, Department of Kinesiology and Nutrition Sciences</td>
<td></td>
</tr>
<tr>
<td>11:00 – 11:15am</td>
<td>Characterization of Novel Biosurfactant/Bioemulsifier Producing Bacteria Isolated from Hydraulic Fracturing Waters. <strong>Author:</strong> Anthony Harrington, School of Life Sciences</td>
<td><strong>Author:</strong> Anthony Harrington, School of Life Sciences</td>
<td></td>
</tr>
<tr>
<td>11:15 – 11:30am</td>
<td>On a Statistical Investigation of the Dependence Structure Between Two Related Time Series: Application to Hurricane Frequency Modeling. <strong>Authors:</strong> Moinak Bhaduri and Chih-Hsiang Ho, Department of Mathematical Sciences</td>
<td><strong>Authors:</strong> Moinak Bhaduri and Chih-Hsiang Ho, Department of Mathematical Sciences</td>
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</table>

#### Science Platform Session B: Room 207

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>Presenter(s)</th>
<th>Affiliation</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>DNA Twisting and VirB: Mechanistic Insight into a DNA binding Protein Essential for Virulence in the Human Pathogen <em>Shigella flexneri</em>. <strong>Authors:</strong> Michael A. Picker, Juan C. Duhart, Joy A. Immak and Helen J. Wing, School of Life Sciences</td>
<td><strong>Authors:</strong> Michael A. Picker, Juan C. Duhart, Joy A. Immak and Helen J. Wing, School of Life Sciences</td>
<td></td>
</tr>
</tbody>
</table>
2015 Graduate & Professional Student Research Forum at a Glance

Science Platform Session B: Room 207 (cont.)


9:30 – 9:45am C-Terminome Web-Application: A Tool to Mine the C-Termini of Human Proteome. Author: Surbhi Sharma, School of Life Sciences

9:45 – 10:00am Minimalist vs. Cushioned Running Shoes: Impact Loads Vary with Foot-Strike Pattern. Authors: Andrew D. Nordin and Janet S. Dufek, Department of Kinesiology and Nutrition Sciences

10:00 – 10:30am Break

10:30 – 10:45am Non-B DNA Promotes Genetic Diversity in B. subtilis Stationary Phase Cells. Authors: Carmen Vallin, Amanda A. Prisbrey and Eduardo A. Robleto School of Life Sciences

10:45 – 11:00am Tiling Assembly: A New Tool for Reference Annotation Independent Transcript Assembly and Novel Gene Identification by RNA- Sequencing. Author: Kenneth Watanabe, School of Life Sciences

11:00 – 11:15am Studying Tadpoles for Insights into Natural Tissue Regeneration. Authors: Cindy X. Kha and Ai-Sun Tseng, School of Life Sciences

11:15 – 11:30am Generalized Markoff Equations, Euclid Trees and Chebyshev Polynomials. Author: Donald McGinn, Department of Mathematical Sciences

Science and Engineering Platform Session C: Room 208A

8:45 – 9:00am A Hazardous Ozone Disinfection Byproduct: NDMA Formation and Implications for Water Reuse. Authors: Erica Marti, Jacimaria Batista and Eric Dickenson, Department of Civil and Environmental Engineering and Construction

9:00 – 9:15am Established Models of Hydrothermal Fluid Distribution around Porphyry Deposits: The Application of Fluid Inclusion Research to Porphyry Exploration. Authors: Wyatt M. Bain, Jean S. Cline, Tim M. Marsh, Department of Geoscience

9:15 – 9:30am Neutron Spectroscopy with Scintillation Detectors Using Wavelets. Author: Jessica Hartman, Department of Mechanical Engineering
2015 Graduate & Professional Student Research Forum at a Glance

Science and Engineering Platform Session C: Room 208A (cont.)

9:30 – 9:45am Weathering Profiles at Mawrth Vallis Yield Insight into the Aqueous History and Potential Habitability of Mars. Authors: Seth Gainey and Elisabeth Hausrath, Department of Geoscience

9:45 – 10:00am Hydrologic evaluation in a Snow Dominated Watershed Using a Process Based Model. Author: Chao Chen, Department of Civil and Environmental Engineering and Construction

10:00 – 10:30am Break

10:30 – 10:45am Influence of Larrea tridentata on Chloride Concentration in Shallow Desert Soils. Author: Sara Gedo, Department of Geosciences

10:45 – 11:00am An Evaluation of Current Practices of Road Maintenance Contracting Methods. Authors: Kishor Shrestha and Pramen P. Shrestha, Department of Civil and Environmental Engineering and Construction

11:00 – 11:15am Building Better Climate Models: When Caves and Computers Collaborate. Authors: Jonathan Baker and Matthew Lachniet, Department of Geoscience

11:15 – 11:30am Practical Procedure to Measure Mechanical Properties of Vaginal Tissue. Authors: Sogol Pirbastami, Brendan O'Toole and Mohamed Trabia, Department of Mechanical Engineering

Fine Arts and Humanities Platform Session A: Room 208B

8:45 – 9:00am HIP Harpsichords: Historically Informed Performance of Early Keyboard Music. Author: Monique Arar, Department of Music

9:00 – 9:15am Hartford, Connecticut 1900: The Story of a Suicide. Author: Aurora Brackett, Department of English

9:15 – 9:30am Sin City in Tokyo. Author: Joleen Long, Department of English

9:30 – 9:45am The Gothic Other in J.M. Coetzee’s “Waiting for the Barbarians”. Author: Clancy McGilligan, Department of English

9:45 – 10:00am John Wayne in Spain. Author: Kayla Miller, Department of English

10:00 – 10:30am Break

10:30 – 10:45am Enlightenment. Author: Camilla Oldenkamp, Department of Art
# 2015 Graduate & Professional Student Research Forum at a Glance

**Humanities and Fine Arts Platform Session A: Room 208B (cont.)**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Author/Department</th>
</tr>
</thead>
</table>
| 10:45 – 11:00am | The Poem as Plastic Art: Mina Loy’s “Brancusi’s Golden Bird”.  
**Author:** Derek Pollard, Department of English |                                           |
| 11:00 – 11:15am | Society of Children's Book Writers and Illustrators Conference.  
**Author:** Rebecca Robison, Department of English |                                           |
| 11:15 – 11:30am | Poetry as an Ethical Act: The Human Will in T. S. Eliot’s “Ash Wednesday”.  
**Author:** Michelle Villanueva, Department of English |                                           |
| 11:30 – 11:45am | Lowly Saints in Holy Places: Poetry of Humility & Exaltation.  
**Author:** Denise Weber, Department of English |                                           |

**Social Science Platform Session A: Room 208C**

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Author/Department</th>
</tr>
</thead>
</table>
| 9:00 – 9:15am | The Painted Motifs of Cypriot Ceramic Art: A Study of Iconography and Identity.  
**Author:** Paige Bockman, Department of Anthropology |                                           |
| 9:15 – 9:30am | Performance or Processing? Effects of Levels of Processing and Divided Attention on Memory-Related Eye Movements.  
**Authors:** Wei An and Colleen Parks, Department of Psychology |                                           |
| 9:30 – 9:45am | Rafts (or floats?) 'Ahoy: Documenting Animal Transportation to Cyprus during the Pre- and Early Neolithic.  
**Author:** Katelyn DiBenedetto, Department of Anthropology |                                           |
| 9:45 – 10:00am | Interactions of Behavioral Training and Ketamine Administration on Changes in Parvalbumin Positive Neurons.  
**Authors:** Monica Bolton, Chelcie Heaney, Andrew Murwishaw, Michael Langhardt and Jefferson Kinney, Department of Psychology |                                           |
| 10:00 – 10:30am | Break                                                               |                                           |
| 10:30 – 10:45am | Research with an Agenda: Creationist Media on Archaeological Discoveries.  
**Author:** Krystal Hammond, Department of Anthropology |                                           |
| 10:45 – 11:00am | Identity as a Predictor of Affective Responses in Polyamorous and Monogamous Individuals.  
**Author:** Antoinette Izzo, Department of Anthropology |                                           |
| 11:00 – 11:15am | Social Physique Anxiety, Body Surveillance, Ethnic Identity, and Bulimic Symptoms among Mexican American Women.  
**Authors:** Kimberly Claudat and Cortney S. Warren, Department of Psychology |                                           |
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session A: Room 208C (cont.)

11:15 – 11:30am Picrolite Carving in Neolithic Cyprus: An Introduction. Author: Forrest Jarvi, Department of Anthropology

Social Science Platform Session B: Room 209

9:00 – 9:15am Self-infliction of Pain as Reputational Commodity. Authors: Matthew Martinez and Pierre Lienard, Department of Anthropology

9:15 – 9:30am Chronic LPS-induced Inflammatory Response in a Diabetic Model of Alzheimer’s Disease. Authors: Andrew S. Murtishaw, Chelcie F. Heaney, Monica M. Bolton, and Jefferson W. Kinney, Department of Psychology

9:30 – 9:45am A Natural History of the Drag Queen Phenomenon. Authors: Michael Moncrieff and Pierre Lienard, Department of Anthropology

9:45 – 10:00am Serious Drinking Games: Christian Men’s Negotiation of Corporate Drinking Practices and Religious Identity in South Korea. Author: Alex Nelson, Department of Anthropology

10:00 – 10:15am Break

10:30 – 10:45am Do People Hear Multiple Levels of Metrical Hierarchies in Music? Authors: Jessica E. Nave-Blodgett, Erin E. Hannon and Joel S. Snyder, Department of Psychology

10:45 – 11:00am Osteoarthritis in the Elbow and Knee from a Modern Documented Cemetery Collection in Cyprus: Using “New” Bones to Understand “Old” Ones. Author: Cristina Tica, Department of Anthropology

11:00 – 11:15am Ethnic and American Identity as Correlates of Eating Pathology in College Women. Authors: Liya Rakhkovskaya and Cortney S. Warren, Department of Psychology

11:15 – 11:30am Is the Romantic/Sexual Kiss a Human Universal? Author: Shelly Volsche, Department of Anthropology
## 2015 Graduate & Professional Student Research Forum at a Glance

### Social Science Platform Session C: Room 211

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:15 – 9:30am</td>
<td>The Social Consequences of Technological Change: Archaeological</td>
<td>Sarah MacIntosh, Department of Anthropology</td>
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<tr>
<td></td>
<td>Case Studies from the Pre-Pottery Neolithic a Period to the Middle</td>
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<td>Bronze Age period in the Near East.</td>
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<td><strong>Author:</strong> Sarah MacIntosh</td>
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<td></td>
<td><strong>Department of Anthropology</strong></td>
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<tr>
<td>9:30 – 9:45am</td>
<td>Depression and Dissociation as Predictors of Posttraumatic Symptoms</td>
<td>Emma Ross, Christopher Kearney and Kyleigh Sheldon, Department of Psychology</td>
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<tr>
<td></td>
<td>among Community Youth.</td>
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<tr>
<td></td>
<td><strong>Authors:</strong> Emma Ross, Christopher Kearney and Kyleigh Sheldon</td>
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<td></td>
<td><strong>Department of Psychology</strong></td>
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<tr>
<td>9:45 – 10:00am</td>
<td>The Role of Water Salinity in Limestone Tempered Logandale Gray</td>
<td>William Willis and Karen Harry, Department of Anthropology</td>
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<td></td>
<td>Ware Ceramic Production in the Moapa Valley, Nevada: An Experimental</td>
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<td>Approach.</td>
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<td><strong>Authors:</strong> William Willis and Karen Harry, Department of</td>
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<tr>
<td></td>
<td>Anthropology</td>
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<tr>
<td>10:00 – 10:30am</td>
<td><strong>Break</strong></td>
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</tr>
<tr>
<td>10:30 – 10:45am</td>
<td>Categorizing Speech and Song in Childhood and Adulthood.</td>
<td>Christina M. Vanden Bosch der Nederlanden, Erin E. Hannon and Joel S. Snyder Department of</td>
</tr>
<tr>
<td></td>
<td><strong>Authors:</strong> Christina M. Vanden Bosch der Nederlanden, Erin E.</td>
<td>Psychology</td>
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<td></td>
<td>Hannon and Joel S. Snyder Department of</td>
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<tr>
<td></td>
<td>Psychology</td>
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<tr>
<td>10:45 – 11:00am</td>
<td>Evaluating Land Use in the Mojave Sink: Survey Data from Afton</td>
<td>Aaron Woods, Barbara Roth and Katelyn DiBenedetto, Department of Anthropology</td>
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<tr>
<td></td>
<td>Canyon, San Bernardino County, California.</td>
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<tr>
<td></td>
<td><strong>Authors:</strong> Aaron Woods, Barbara Roth and Katelyn DiBenedetto</td>
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<td></td>
<td><strong>Department of Anthropology</strong></td>
<td></td>
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<tr>
<td>11:00 – 11:15am</td>
<td>Sensory and Motor Deficits in Spanish Speaking Individuals with</td>
<td>Davor Zink, Liza E. San Miguel and Daniel Allen, Department of Psychology</td>
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<tr>
<td></td>
<td>Schizophrenia.</td>
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<tr>
<td></td>
<td><strong>Authors:</strong> Davor Zink, Liza E. San Miguel and Daniel Allen</td>
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<td></td>
<td><strong>Department of Psychology</strong></td>
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<tr>
<td>11:15 – 11:30am</td>
<td>Inner Experience during Marathon Running.</td>
<td>Stefanie Moynihan and Russell Hurlburt, Department of Psychology</td>
</tr>
<tr>
<td></td>
<td><strong>Authors:</strong> Stefanie Moynihan and Russell Hurlburt, Department of</td>
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<td>Psychology</td>
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</tbody>
</table>

### Social Science and Law Platform Session D: Room 213

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 – 9:15am</td>
<td>“Evidence of Existence”: “Evidence of Occurrence”.</td>
<td>Joseph Thomson, Department of History</td>
</tr>
<tr>
<td>9:15 – 9:30am</td>
<td>Unrealistic Weeds of Love and Romance: The Korean Drama and the</td>
<td>Colby Miyose, Department of Communication Studies</td>
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<td>“Flower Boy” Genre.</td>
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</tr>
<tr>
<td>9:30 – 9:45am</td>
<td>Access to Justice: A Look at Modelama Exports’ Human Rights</td>
<td>Ani Biesiada and David Hales, School of Law</td>
</tr>
<tr>
<td></td>
<td>Violations.</td>
<td></td>
</tr>
</tbody>
</table>
2015 Graduate & Professional Student Research Forum at a Glance

Social Science and Law Platform Session D: Room 213 (cont.)

9:45 – 10:00am  Client Selected Music Based Effects on Marital and Couples Therapy.  
Author: Kevin Smith, Program of Marriage and Family Therapy

10:00 – 10:30am  Break

10:30 – 10:45am  Profiling Proximal Places: How Street Segment Crime Signature Analysis Can Inform Theory and Practice. Authors: Jonathan Birds and Tamara Madensen, School of Environmental and Public Affairs

10:45 – 11:00am  “Assembly Line of Broken Fingers”: A Roadmap to Combating Occupational Health and Safety Hazards in the Manesar Auto Industrial Belt. Authors: Keivan Roebuck and Craig Friedel, School of Law

11:00 – 11:15am  Ronald Johnson's ARK and the Watts Towers of Simon Rodia. Author: Amber Overholser, School of Environmental and Public Affairs

11:15 – 11:30am  Classification of Metropolitan Communities as a Function of Population and Job Shifts. Author: Al Gourrier, School of Environmental and Public Affairs

Social Science Platform Session E: Room 213: Room 218

8:30 – 8:45am  Police Responses to Domestic Violence and Public Perception. Authors: Kelly Stout and M. Alexis Kennedy, Department of Criminal Justice

8:45 – 9:00am  Miracle in the Mojave: Miracle in the Mojave: Everyday Religion and the Sacralization of Urban Space. Author: Tyler Schafer, Department of Sociology

9:00 – 9:15am  Drive-by-Ethnography: The Bureaucratization of Ethnographic Research Methods. Authors: Nicholas Baxter and Christopher Conner, Department of Sociology

9:15 – 9:30am  Multilateral Development Banks and Economic Growth. Author: Moritz P. Rissmann, Department of Political Science

9:30 – 9:45am  Love, Marriage, and Movies. Authors: Lauren Galloway and Erika Engstom, Department of Sociology

9:45 – 10:00am  Family Formation, Care and Financial Support and Gender Ideology of Fatherhood, from a Life Course Perspective. Author: Rachel Macfarlane, Department of Sociology
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session E: Room 218 (cont.)

10:00 – 10:30am  Break

10:30 – 10:45am  Victim Offender Reconciliation Program in China. Authors: Qingting Hu, Hong Lu and Lei Ma, Department of Criminal Justice

10:45 – 11:00am  Cultural Life of the Living Dead. Author: Denise Cook, Department of Sociology

11:00 – 11:15am  Economic Perceptions and Presidential Trust in the Caucasus. Author: Rafael Oganesyan, Department of Political Sciences

11:15 – 11:30am  A Candidate by Any Other Name: Investigating the Use of Nicknames as Heuristics. Authors: Kate Eugenis and Jonathan Bradley, Department of Political Sciences

Social Science Platform Session F: Room 219

8:30 – 8:45am  Do EU Structural Funds Have an Effect on French EP Elections? Author: Nathan Henceroth, Department of Political Science

8:45 – 9:00am  Housework and Employment: Trends Before, During, and After the 2007 U.S. Economic Recession. Author: Allison Sahl, Department of Sociology

9:15 – 9:30am  Big Hover or Big Brother? Public Attitudes on Using Drone Technology for Visual Surveillance Activities. Authors: Mari Sakiyama, Joel D. Lieberman and Terry Miethe, Department of Criminal Justice

9:15 – 9:30am  “Our Bedrooms Are Our Stage”: Selling Sex & Intimacy in a Nevada Brothel. Author: Christina Parreira, Department of Sociology

9:30 – 9:45am  Southeast Asia’s Environmental Policy: Perceptions and Realities. Author: Erika Masaki, Political Science

9:45 – 10:00am  Whose Community? Gentrification and Media Representation in Downtown Las Vegas. Author: Andrea Dassopoulou, Department of Sociology

10:00 – 10:30am  Break
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session F: Room 219 (cont.)

10:30 – 10:45am Probation and Parole Officer Attitudes toward Evidence-Based Practices: Application and Modification of the Evidence-Based Practices Attitudes Scale (EBPAS). Author: Breanna Boppre, Department of Criminal Justice

10:45 – 11:00am Producing Authenticity: Personal Style Bloggers, Branding, and Cultural Intermediaries. Author: Jennifer Whitmer, Department of Sociology

11:00 – 11:15am Expatriate Voting Rights in Latin America and the Caribbean: The Influence of Remittances, Globalization, and Partisan Control. Authors: Hafthor Erlingsson and John Tuman, Department of Political Science

11:15 – 11:30am Post-Cold War Era Ethnic Civil Wars. Author: Michael Trevathan, Department of Political Science

Education Platform Session E: Room 222: Room 218

8:30 – 8:45am Factors for Changing Preservice Teachers’ (PSTs) Knowledge, Attitudes, and Beliefs regarding Second Language Acquisition (SLA) and English Language Learners (ELLs). Authors: Elif Adibelli and Refika Turgut, Department of Teaching and Learning

8:45 – 9:00am Lessons Learned about Preschool Children’s Use of iPads. Author: Amy Adkins, Department of Teaching and Learning

9:00 – 9:15am Reducing Court-Related Stress through Court Education: Examining Child Witnesses, Parents and Attorneys. Author: Brittnie Watkins, Department of Educational Psychology and Higher Education

9:15 – 9:30am Teaching Positive Images of Disability in Native American Young Adult Literature. Author: Laura Decker, Department of Teaching and Learning

9:30 – 9:45am The Impact of Sociocultural Practices on International Graduate Students’ Teacher Identity Development. Authors: Alexandra Dema, Refika Turgut and Shaoan Zhang, Department of Teaching and Learning

9:45 – 10:00am Facilitating Inclusion of Diverse Students with EBD Through Cooperation Games. Authors: Samantha Riggleman and Teri Marx, Department of Educational and Clinical Studies
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Platform Session F: Room 219 (cont.)

10:15 – 10:30am Lessons Learned about Preschool Children's Use of iPads. Author: Lina DeVaul, Department of Teaching and Learning

10:30 – 10:45am Assessing Validity of Multiple Choice Questions in Measuring Fourth Graders Ability to Interpret Graphs about Motion and Temperature. Authors: Mehmet Dulger and Hasan Deniz, Department of Teaching and Learning

10:45 – 11:00am Community College Transfer in Southern Nevada: An Investigation of Policy and Outcomes. Author: Caitlin Saladino, Department of Educational Psychology & Higher Education

11:00 – 11:15am A Case Study of Social Justice Education in a General Methods Course. Author: Christina Santoyo, Shaoan Zhang and Danny Murphy, Department of Teaching and Learning

11:15 – 11:30am Black Male Education and Employment Opportunities. Author: Bob Walker, Department of Teaching and Learning

Science & Engineering Poster Session A: Ballroom

Posters 1 – 5: Judging at 8:45 – 10:00am

1. The Role of Insulin like Growth Factor 1 Receptor in Modulation Plasma Membrane Lipid Rafts through Affecting Acid Sphingomyelainse in Both Neural and Mesenchymal Stem Cells Development. Authors: Amro Abdalla and Hong Sun, Department of Chemistry

2. Sulfate Resistance of Nano Silica and Micro Silica Contained Mortars. Authors: Iani Batilov, Nader Ghafoori and Meysam Najimi, Department of Civil and Environmental Engineering and Construction


4. Performance Testing of Web-Based Data Visualization. Authors: Sungchul Lee, Ju-Yeon Jo and Yoohwan Kim, Department of Computer Science

5. Equation of State for Technetium from X-Ray Diffraction and First-Principle Calculations. Authors: Daniel S. Mast, Eunja Kim, Emily Siska, Frederic Poineau, Kenneth R. Czerwinski, Philippe F. Weck, Barbara Lavina, and Paul M. Forster, Department of Chemistry
2015 Graduate & Professional Student Research Forum at a Glance

Science & Engineering Poster Session A: Ballroom (cont.)

Posters 6 – 10: Judging at 10:15 – 11:30am

6. Multi-century Annual Streamflow Reconstruction using Tree Ring Chronology and Pacific Ocean Climate Information. Authors: Saria Bukhary, Ajay Kalra and Sajjad Ahmad Department of Civil and Environmental Engineering and Construction

7. Reconstructing Pacific-Atlantic Hydrologic Variability during the Medieval Climate Anomaly Using Paleorainfall δ18O Records from the Tropics. Author: Melisa Bishop, Department of Geoscience

8. Experimental Measurement of the Pressure Drop in the Flexible Ducting System. Authors: Samad Gharehdaghimollahajloo and Samir Moujaes, Department of Mechanical Engineering

9. Computed Tomography. Author: Ali Pour Yazdanpanah, Department Electrical and Computer of Engineering

10. Review on Ultra High Performance Concrete. Authors: Robabeh Jazaei and Nader Ghafoori, Department of Civil and Environmental Engineering

Science & Engineering Poster Session B: Ballroom

Posters 11 – 15: Judging at 8:45 – 10:00am


12. Novel Radionuclide Wasteforms Prepared Under Pressure. Author: Emily Siska, Department of Chemistry

13. Can Industrial Wastewater (Unilever, Ocean Spray and Biodiesel) Generated in Nevada be used as Carbon Source in Place of Conventional Carbon Sources to Treat Groundwater Contaminant-Perchlorate?" Author: Sichu Shrestha, Civil and Environmental Engineering and Construction

14. Climate Change Impact on Precipitation in the Chi-Mun basin, Thailand. Author: Nudthawud Homtong, Department of Geoscience

15. Disolution of Nontronite in low water activity Brines and Implications for the Habitability of Mars. Authors: Michael Steiner, Elisabeth Hausrath and Megan Elwood, Department of Geoscience
2015 Graduate & Professional Student Research Forum at a Glance

Science & Engineering Poster Session B: Ballroom (cont.)

10:00 – 10:30am Break

Posters 16 – 19: Judging at 10:30 – 11:30am

16. Chemical Characterization of Dust Deposition in an Arid Environment. Authors: Jason Sylva, Maria Cruz and Spencer M. Steinberg, Department of Chemistry

17. Quantifying Security Risk of Network Vulnerability by Risk Conditions. Author: Candace Suh-Lee, Department of Computer Science

18. Time-Scale Variations of Long-Term Changes in Streamflow for Continental USA. Author: Kazi Tamaddun, Department of Civil and Environmental Engineering and Construction

19. DTF Analysis of the Resistivity and Magnetization of Tc5I13. Authors: Jarod Wollfis, William Kerlin, Keith Lawler, Frederic Poinneau, Kenneth Czerwinski, Al Sattelberger and Paul Forster, Department of Chemistry

Science & Health Science Poster Session B: Ballroom

Posters 20 – 24: Judging at 8:45 – 10:00am

20. Review of IRB processes and metrics for IRB review at UNLV. Author: Cindy Lee-Tataseo, Department of Healthcare Administration and Policy

21. Inhibition of Paenibacillus larvae Spore Germination. Authors: Israel Alvarado, Michelle Elekonich and Ernesto Abel-Santos, School of Life Sciences

22. Effects of Dual-Tasking on Spatio-Temporal Gait Parameters in Children with Cerebral Palsy. Authors: John R. Harry, Robbin Hickman, Szu-Ping Lee, Brendan Morris and Janet Dufek, Department of Kinesiology & Nutrition Sciences

23. Toll-like Receptor 2 Activation Increases Expression of Platelet-Activating Factor Acetylhydrolase. Author: Jennifer Brown, School of Dental Medicine

24. Oral Microbial Burden of Periodontal Pathogens among Orthodontic Patients. Author: Kaylee Wonder, School of Dental Medicine

10:00 – 10:15am Break
2015 Graduate & Professional Student Research Forum at a Glance

Science and Health Science Poster Session C: Ballroom (cont.)

Posters 25 – 29: Judging at 10:15 – 11:30am

25. Relationship between Resistance Band Tension and Muscle Activity during Use of a Hip Exercise Device. Authors: Kristyne Bartel, Austin Coupé and Janet Dufek, Department of Kinesiology and Nutrition Sciences

26. Conservation Genetics for a Potentially Endangered Rodent Population. Authors: Caldonia Hartel, Sean Neiswenter and Brett Riddle School of Life Sciences

27. Oral Prevalence of Fusobacterium Nucleatum Reveals Age-Related Colon Cancer Risks. Author: Ecsile Chang, School of Dental Medicine

28. Analysis of Gender-Specific Differences in Oral Melatonin Receptor Expression. Author: Jessica Dick, School of Dental Medicine

29. Melatonin (MLT) Supplementation Reveals Differential Receptor Effects in Oral Carcinomas. Author: Michelle Farnoush, School of Dental Medicine

Science and Health Science Poster Session D: Ballroom

Posters 30 – 35: Judging at 8:30 – 10:00am

30. Effect of Outsole Degradation on Running Kinetics and Kinematics. Authors: Austin Coupé, Julia Freedman Silvernail and Janet Dufek. Department of Kinesiology and Nutrition Sciences

31. Can Desert Mosses Hide from Climate Change? The Buffering Capacity of Moss Microclimates. Authors: Theresa Clark, Dale Devitt, Lloyd Stark and Alexander Russell, School of Life Sciences

32. Interactive Effects of 1,25-Dihydroxyvitamin D3 and Soy Protein Extract (SPE) on Oral Cancer Proliferation In Vitro is Mediated, in Part, by Expression of the Vitamin D Receptor (VDR). Author: Saro Oknaian, School of Dental Medicine

33. Lower Education and Hispanic Race Influence Quality of Care of Breast Cancer Patients and Survivors. Authors: Sanae El Ibrahimi and Paulo Pinheiro, School of Public Health

34. The Effects of Locomotion-Induced Shock Loading on Tibiofemoral Bone Stress Injury. Authors: Alexa Standerfer, Karen Daun and Suzenna Ngo, Department of Physical Therapy

35. Exosome Analysis: Isolation of Oral Squamous Cell Carcinoma NicroRNA in Culture. Author: Brady Petersen, School of Dental Medicine
2015 Graduate & Professional Student Research Forum at a Glance

Science and Health Science Poster Session D: Ballroom (cont.)

10:00 – 10:15am  Break

Posters 36 – 40: Judging at 10:15 – 11:30am

36. An Evaluation of Select Physical Activity Exercise Classes (PEX) on Markers of Bone Mineral Density. **Authors:** Tori Stone, Chase LaComb, James Navalta, Jack Young, Richard Tandy, Laura Kruskall and Patricia Alpert, Department of Kinesiology and Nutrition Sciences

37. The Role of Mfd in Oxidative Damage Repair. **Authors:** Kate Porter, Amanda Prisbrey, Carmen Vallin and Eduardo A. Robleto, School of Life Sciences

38. Leukocyte Response and Recovery to Exercise in HCMV+ Individuals. **Author:** Jared Wilson, Department of Kinesiology and Nutrition Sciences

39. Role of Race/Ethnicity and Melatonin Expression among Healthy Adults. **Author:** Kory Grahl, School of Dental Medicine

40. Correlation between Folate Supplementation and the Proliferation and Survival of Oral Squamous Cell Carcinomas. **Author:** John Silvaroli, School of Dental Medicine

Social Science and Law Poster Session A: Ballroom

Posters 41 – 44: Judging at 9:00 – 10:00am

41. The Devil Made Me Do It: The Effects of Focus of Concern and Level of Authority on Perceptions of Domination in Death Penalty Cases. **Authors:** Alexa Bejinariu, Suparna Malempati and Joel D. Lieberman, Department of Criminal Justice

42. Measures of Acculturation and their Association to Dietary Behaviors among Hispanic Adults in the United States. **Authors:** Erik López, Takashi Yamashita and Christie Batson, Department of Sociology

43. Attitudes and Perceptions towards Sex Tourism in Las Vegas. **Author:** Carolyn Willis, Department of Criminal Justice

44. “Bonded Tenancy”- International Human Rights Framework. **Authors:** Stacy Newman, Lindsay Liddell and Katerina Chadliev, School of Law
2015 Graduate & Professional Student Research Forum at a Glance

Social Science and Law Poster Session A: Ballroom (cont.)

Posters 45 – 48: Judging at 10:30 – 11:30am

45. Understanding the Civil Protection Order Process: The Relationship between Self-Help, the Court System, and Experiential Knowledge. Authors: Dory Mizrachi, Emily I. Troshynski, Elizabeth L. MacDowell, and Amy Magnus, School of Environmental Studies and Public Affairs

46. Expanding Educational Opportunity and Equity for English Learners: The Role of School Boards in the U.S. Mountain West. Author: Carrie Sampson, School of Environmental Studies and Public Affairs

47. Putting the Microscope on Crime Labs: The Effects of Evidence Complexity and Laboratory Type on Jurors’ Perceptions of Forensic Evidence. Authors: Miliaikeala S. J. Heen and Joel D. Lieberman, School of Environmental Studies and Public Affairs

48. Policing Political Protest Events: Risks and Challenges. Author: Logan Kennedy, Department of Criminal Justice

Social Science Poster Session B: Ballroom

Posters 49 – 53: Judging at 9:00 – 10:15am

49. Effect of Engagement Strategy on Client’s Disclosure. Authors: Yulia Gavrilova, Ashley Dowd, Travis Loughran, Ande Pascua, Regina Mitchell and Brad Donohue, Department of Psychology

50. A GIS-Based Analysis of the Lithic Core Find Locations at Krittou Marottou Ais Giorkis. Author: Levi Keach, Department of Anthropology

51. GABAB Ligand Dose-Dependent Changes in Spatial Learning and Hippocampal GABAergic and Plasticity Proteins. Authors: Chelcie F. Heaney, Monica M. Bolton, Andrew S. Murtishaw, Michael A. Langhardt, Jefferson W. Kinney, Department of Psychology

52. The Art of Feasting: Style and Identity in a Ritual Area at the Harris Site. Author: Ashley Lauzon, Department of Anthropology

53. The Dynamics of Infants’ Interest in Female and Male Faces: A Recurrence Quantification Analysis. Authors: Andrea Kayl and Jennifer L. Rennels, Department of Psychology

10:00 – 10:30am Break
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Poster Session B: Ballroom (cont.)

Posters 54 – 57: Judging at 10:30 – 11:30am

54. Relative Contribution of Caregivers’ Marijuana and Hard Drug Use in Predicting Child Maltreatment Potential While Considering Social Desirability. Authors: Kimberly Schubert, Bradley Donohue, Graig M. Chow, Anali Torres, Quincy J. Palou and Kenza B. El Ansari, Department of Psychology

55. It's all about the Timing: Investigating the Self-Report of Math Anxiety. Authors: Amy J. McAuley, Alex M. Moore, Mark H. Ashcraft, Department of Psychology

56. Steroid Hormone Change in Response to Competition in Juvenile Boys. Authors: Timothy McHale, Peter Gray and David Zava, Department of Anthropology

57. Cognitive Depletion: Exploring the Consequences of Having Too Many Options. Author: Laura Werner, Department of Psychology

Social Science Poster Session C: Ballroom

Posters 58 – 61: Judging at 9:00 – 10:00am

58. The Mental Organization of Permanent and Situational Character Attributes. Authors: Kathleen Larson and David Copeland, Department of Psychology

59. The Effects of Dopamine Antagonism on Reward Learning in Schizophrenia. Authors: Bern Lee, Sally J. Vogel, S. J. Sisk, J.K. Yao, D.P. van Kammen and Daniel N. Allen, Department of Psychology

60. The Elite’s War: Violence and Social Coercion at Chaco Canyon and Casas Grandes (AD 900-1400). Author: Caryn Tegtmeyer, Department of Anthropology

61. Effects of Speech Rate Context on Speech Comprehension. Author: David Weintraub and Joel Snyder, Department of Psychology

10:00 – 10:30am Break

Posters 62 – 65: Judging at 10:30 – 11:30am

62. Improvement in Executive Function Following Traumatic Brain Injury (TBI) in Children. Authors: Abigail Mayfield, Anna Reyes, Joan Mayfield and Daniel Allen, Department of Psychology

63. Bioarchaeology of the Arabian Bronze Age: Humeral Enthesal Changes and Burial Patterns at Tell Abraq. Authors: Mark Toussaint and Debra Martin, Department of Anthropology
2015 Graduate & Professional Student Research Forum at a Glance

Social Science Poster Session C: Ballroom (cont.)

64. The Effects of Gender and Cost on Suspicion: An Evolutionary Perspective. Authors: Mandy Walsh and Murray Millar, Department of Psychology

65. The Effect of Perceived Attractiveness on Endorsement of the Just World Hypothesis. Authors: R. Shane Westfall and Murray Millar, Department of Psychology

Education Poster Session A: Ballroom

Posters 66 – 73: Judging at 8:30 – 10:30am

66. Evidence-Based Practices: School District Considerations for the Professional Development of General and Special Educators. Author: Pamela Juniel, Educational & Clinical Studies

67. Teacher Candidate Technology Integration: For Student Learning or Instruction? Authors: Cynthia Clark and Shaoan Zhang, Department of Teaching & Learning

68. I See You: Comparing the Effect of Asynchronous and Synchronous Video versus Text Based Communication in an Online Teacher Education Course. Authors: Rachel Part, Joe N. Crank, Rebecca Nathanson and Brittnie Watkins, Department of Educational Psychology and Higher Education

69. A Bayesian Scale to Measure the Big-5 Personality Traits. Authors: Jennifer S. Guttman, W. Paul Jones, Hannah Berry, Isabelle Sanchez, Scott A. Loe and Tara Raines, Department of Educational Psychology & Higher Learning

70. Making Math More Relevant Through Integrated STEM. Author: Cathrine Maiorca, Department of Teaching & Learning

71. Two Simulation Tools to Promote Learning in Science. Authors: Pamela A. Maher, Janelle M. Bailey, P. G. Schrader and James Ormord, Department of Teaching & Learning

72. Design, Development, and Delivery of the Nevada GEAR UP STEM Summer Institute. Authors: Schetema Nealy, Kristoffer Carroll, Heather Skaza, Erica Marti, Eshani Gandhi, Mehmet Dulger, Daniel Gerrity, Travis Olson, PG Schrader and MaryKay Orgill, Department of Chemistry

73. Teaching English as a Second Language: Not just a want, a Nevada NEEDs! Author: Mary T. Simmons, Department of Department of Education & Clinical Studies

10:30 – 10:45am Break
2015 Graduate & Professional Student Research Forum at Glance

Education Poster Session A: Ballroom (cont.)

Posters 74 – 76: Judging at 10:45 – 11:30am

74. The Earlier the Better: Teacher Beliefs About Design, Engineering, and Technology Instruction. Authors: Abeera P. Rehmat, Marissa C. Owens and Janelle M. Bailey, Department of Teaching & Learning

75. Does Prior Knowledge Modify the Testing Effect? Authors: Megan Cogliano and CarolAnne Kardash, Department of Educational Psychology & Higher Education

76. Designing, Analyzing, Modifying, and Supplementing an Inclusive English Language Arts Curriculum for Gender-and-Culture-Diverse Student Populations. Author: Zachary Sanderson, Department of Teaching & Learning

Fine Arts Poster Session A: Ballroom

Posters 77 – 81: Judging at 8:45 – 10:00am

77. Master's of Architecture concentration in Educational Facilities. Authors: Katherine Slaughter, Jesus Diaz and Melissa Avelar, School of Architecture

78. Infinite reflection. Author: Audrey Barcio, Department of Art

79. Transformations of Flesh in Oil Paint. Author: Wendy Chambers, Department of Art

80. Tower-on-base Alternatives Driven by Urban Theory Help to Improve Community Integration. Author: Kyle Fischer, School of Architecture

81. Grounds for Abstraction: Large Scale Abstractions on Development. Author: Maureen Halligan, Department of Art

10:00 – 10:30am Break

Posters 82 – 85: Judging at 10:30 – 11:30am

82. Expressing and Celebrating Queer Culture through Art. Author: Elizabeth Johnson, Department of Art

83. Emphasizing Entertainment and Esthetic Aspects of Edible Rooftop Gardens Produces Development Opportunities in Sync with Las Vegas Resort Objectives: Re-envisioning the Sands Expo Roofscape. Author: Alfred Pulido, School of Architecture
2015 Graduate & Professional Student Research Forum at a Glance

Fine Arts Poster Session A: Ballroom (cont.)

84. Decorative Imagery that Shapes our Visual Landscape. Author: Lisa Rock, Department of Art

85. Instax Body Project. Author: Shelbi Schroeder, Department of Art
Graduate & Professional Student Research Forum

Science
Platform Session A
UNLV Student Union Room 205

9:00 – 9:15am  Eric Chameroy, School of Life Sciences
9:15 – 9:30am  Alicia Crespin, School of Life Sciences
9:30 – 9:45am  Ata Ur Rahman Mohammed Abdul, Department of Chemistry
9:45 – 10:00am Alexis Crisp, School of Life Sciences

10:00 – 10:30am  Break

10:30 – 10:45am  Joshua Greenwood, School of Life Sciences
10:45 – 11:00am  Jenni Kumanchik, Department of Kinesiology and Nutrition Sciences
11:00 – 11:15am  Anthony Harrington, School of Life Sciences
11:15 – 11:30am  Moinak Bhaduri, Department of Mathematical Sciences
Facilitation and Competition within Joshua Tree (*Yucca brevifolia*) - Spiny hopsage (*Grayia spinosa*) Nurse-Plant Associations
Eric Chameroy, School of Life Sciences

In arid environments, recruitment and survival of young plants of many species, including Joshua tree (*Yucca brevifolia*), are facilitated by living in close association with larger, more-established plants also referred to as “nurse plants”. I conducted a field experiment to measure facilitation and competition in nurse-plant associations involving Joshua tree and spiny hopsage (*Grayia spinosa*), a dominant woody shrub species in two study areas within Dry Lake Valley, Lincoln County, Nevada, by measuring relative changes in resource usage when one of the species is removed from nurse pairs. The remaining individuals were then compared to control pairs in which both individuals were left intact.

Results of the removal experiment showed overall no significant differences in soil and leaf nutrients between the groups in response to plant removals. There was a difference in leaf water status in spiny hopsage. However, this difference was not consistent across the two study areas. These results suggest that any possible responses may have been masked by below ground biological activity or by differing physical and chemical characteristics across the study areas.

Results of a herbivory survey I conducted in addition to the field experiment concluded that Joshua trees growing under shrub crowns, away from the crown edge, experienced less herbivore damage than those growing near the crown edge.

Although this study suggests that Joshua tree may benefit from these associations through reduced herbivory, interactions within these associations may vary depending upon the biotic and physical characteristics of the environment.
Analyzing Caterpillar-Ant Interactions in Three Butterfly Species of the Mojave Desert: Are Caterpillars Buying Protection or Appeasing Potential Predators?
Alicia Crespin, School of Life Sciences

Butterflies are a diverse and important group of pollinators whose abundance is chiefly determined by growth and survival of caterpillars. In 2,700 species of Lyceanid butterflies, caterpillar development is influenced by ants which feed on a nutrient-rich substance (nectar) produced by the caterpillars. In return for this offering, ants who accept the nectar are presumed to protect caterpillars from predators and parasites. Two prevailing hypotheses address the nature and origin of these interactions. The “appeasement” hypothesis posits that Lyceanid caterpillars produce nectar to avoid predation by ants. This relationship would be costly to caterpillars but shield them from some potential ant predators. The “mutualism” hypothesis proposes that caterpillar-ant interactions arose due to their mutually beneficial nature. Here, the cost of nectar production is outweighed by the benefit of ant protection from other insect predators and parasites. Though many studies have characterized these interactions, few have tested predictions that distinguish appeasement from mutualism or the influence of host plant and ant nest distributions on the interaction. In addition, no studies have addressed the butterfly species of Southern Nevada. This study, performed in the Spring and Summer of 2015, will focus on elucidating the importance of ants for caterpillar development in three species of butterflies found in the Mojave Desert.
Beryllium: A Simple Metal Cation with Possible Therapeutic Potential towards Type II Diabetes and Various Cancers
Ata Ur Rahman Mohammed Abdul, Department of Chemistry

Glycogen Synthase Kinase 3 Beta (GSK-3β) is a multifunctional serine/threonine kinase which plays a major role in cell proliferation, apoptosis, glycogen metabolism, Wnt and hedgehog signaling. The deregulation of pathways involving GSK-3β has been directly linked to major diseases like type II diabetes, Alzheimer’s disease, bipolar disorder and various cancers. There is a great demand for efficient, simple and specific inhibitors of GSK-3β. Lithium, zinc and tungsten are commonly used small molecule inhibitors of GSK-3β. Lithium is the most well characterized specific small molecule inhibitor of GSK-3β with an IC₅₀ of 2 mM but we have established that beryllium is a more potent (1000 times) GSK-3β inhibitor compared to lithium. Our recent studies indicate that beryllium may be a more selective GSK-3β inhibitor in cellular context.

Therapeutic targeting of GSK-3β enzyme presents a peculiar problem wherein the normal functioning of GSK-3β has to be unaffected in important pathways like the Wnt signaling pathway, so as to avoid any serious side effects. Conversely negative regulation of GSK-3β activity is required in diseases like type II diabetes and Alzheimer’s disease. Our new results suggest that beryllium could be the key towards the development of a cell type or pathway specific and effective GSK-3β inhibitor. Beryllium while inhibiting GSK-3β enzyme seems to be selectively inhibiting one pathway while showing no effect on the other GSK-3β pathways.
A Tubular 3D Force Analysis of Kangaroo Rat Burrowing
Alexis Crisp, School of Life Sciences

The study of burrowing biomechanics has been largely restricted to kinematics and one-dimensional force analyses in unnatural, open-air environments. We introduce the Tunnel-tube 2.0, a reworking of our previous force-sensitive tunnel-tube. This tube is composed of two custom designed, 3D-printed Acrylonitrile butadiene styrene (ABS) plastic tubes placed in series. One half of the tube consists of a rubber tube that is sealed inside the plastic itself, filled with radiolucent soil, and marked periodically with ball bearings. These ball bearings change position as the animal presses on soil inside the rubber tube, allowing us to track the direction of force production. A pressure sensor fixed between the rubber and ABS tube (the inter-tube space) measures the magnitude of burrowing force. Both halves are mounted on individual ATI nano-17 six-axis load cells that measure the net force generated in each half, allowing us to isolate the forelimb and hindlimb forces. The pressure sensor data are calibrated against the load cell data and these calibrations are applied to burrowing activity of kangaroo rats (Dipodomys merriami). Kangaroo rats have hindlimbs that are highly specialized for bipedal hopping, but have retained burrowing capabilities with the forelimbs -- making this a sufficiently “decoupled” system on which to validate our design. Here, we elucidate some mechanisms of burrowing in kangaroo rats.

Presentation: Society of Integrative and Comparative Biology, January 7, 2015
A Life Spent Dry: Interactive Effects of Age, Sex, Genotype and Rate of Drying upon Survival in the Desert Moss *Bryum argenteum*
Joshua Greenwood, School of Life Sciences

Desert adapted mosses are among the hardiest organisms on earth, however the methods by which this is achieved and the factors that influence survival have eluded researchers for decades. Over the previous three years our lab has established a paradigm shifting concept in our field by the discovery of an inducible desiccation tolerance (DT) strategy within bryophytes. This more nuanced understanding is in opposition to the previous dominant concept, which described all mosses as either DT or not DT with no organisms in between. With this study we set out to expand upon our previous work by uncovering which factors had the greatest influence upon DT and post desiccation recovery. In this study we are focusing upon DT capacity using the cosmopolitan moss *Bryum argenteum*. *Bryum argenteum* makes an ideal study system due to its high capacity for DT, multiple distinct life history stages, worldwide distribution, habitat diversity and dioecious nature. Interaction as well as single factor effects were examined to determine the relative influence of genotype, sex, life history phase and rate of drying had upon recovery after a desiccation event. Through an exhaustive multiplexed experimental design we have produced a data set capable of determining the relative influence of all the examined factors. Results from this study have shown a surprising number of factors play a role in DT further illustrating the complex nature of the DT response.

Presentation: American Bryological and Lichenological Society, July 29, 2014
Acute Effects of Dynamic Compression on Heart Rate Variability and Peak Heart Rate while Running
Jenni Kumanchik, John A. Mercer and W.A. Sands, Department of Kinesiology and Nutrition Sciences

Anecdotal evidence suggests that the use of dynamic compression can enhance athlete performance when used prior to physical activity. However, limited quantitative data exists to explain this physiological phenomenon. Data exists to support the concept that dynamic compression aids in venous return, thus measuring changes in heart rate variability and heart rate during physical activity may provide insight into the effects of dynamic compression on athlete performance. Therefore, this study sought to assess the acute effects of dynamic compression on heart rate variability (HRV) and peak heart rate (PHR) while running. A single-subject experimental design was used with two conditions: control (without dynamic compression) and treatment (with dynamic compression). Each condition involved ten separate sessions/trials with a dynamic compression protocol (control = 0 mmHg, treatment = 55 mmHg) for 25 min followed by a running protocol on a motorized treadmill at a comfortable pace and 5% incline for one mile. A heart rate monitor with telemetry strap and wristwatch was used to measure HRV and PHR. Data were reduced using time-domain and frequency-domain analyses for HRV. Mean values for HRV and PHR during the compression and running protocols for each condition were compared using two model statistic paired samples t-tests.
Characterization of Novel Biosurfactant/Bioemulsifier Producing Bacteria Isolated from Hydraulic Fracturing Waters
Anthony Harrington, School of Life Sciences

Biosurfactants (BS) and bioemulsifiers (BE) are compounds synthesized by living organisms that can reduce the surface tension at the liquid-liquid, gas-liquid, or solid-liquid interface. This reduction can lead to the formation of an emulsion between immiscible materials usually between two immiscible liquids. BS reduces the surface tension of a liquid that can lead to formation of an emulsion while BE do not necessarily lower the surface tension of a liquid but instead form or stabilize emulsions. Many BS and BE compounds produced by bacteria have been identified and some have been commercialized because these compounds exhibit low toxicity and better biodegradability compared to synthetic surfactants and emulsifiers. Microorganisms that produce BS or BE compounds have been isolated from environments that are in the presence of hydrocarbons or contaminated by hydrocarbons. This study has isolated 40 unique bacteria from various hydraulic fracturing water samples and will determine if any of these bacteria are capable of producing BS or BE compounds. The goal of this study will be to expand on this topic with the hopes of finding microorganisms that produce novel BS or BE and to determine the breadth of microbial diversity capable of synthesizing these compounds.
On a Statistical Investigation of the Dependence Structure Between Two Related Time Series: Application to Hurricane Frequency Modeling
Moinak Bhaduri and Chih-Hsiang Ho, Department of Mathematical Sciences

Simultaneous occurrence of two or more time-dependent sequence of events is frequently encountered in science and engineering and most often, researchers are more interested in the mutual interplay of the two series, rather than the series themselves. The present work endeavors to propose a new mathematical tool termed Empirical Recurrence Rates Ratio (ERRR) and a novel methodology to detect a suspected dependency pattern in a way that appeals to intuition, without sacrificing scientific rigor and we apply our method to real data sets on strong, weak and tropical West Atlantic hurricanes since 1923. The investigation is timely, since as we near the end of the current decade, strong hurricanes and tropical storms originating from the Atlantic ocean continue to pose a relentless threat, especially to the east coast of the United States and researchers believe that in the absence of a sophisticated forecasting tool and a better understanding of the cyclone dynamics, the years to come shall witness an unprecedented loss of human lives and property. Forecasting techniques are then applied to understand whether the observed dependency pattern will continue in the near future so that precautionary measures can be promptly undertaken to cushion the effect of an unforeseen calamity. Careful investigation of EERRR often unearths assignable causes: for instance, global warming in the present case. A simple construction of the EERRR function and its advantages over existing techniques, coupled with the fact that similar series abound in almost every aspect of human endeavor, emphasize the unquestionable versatility of our method.

Presentations:
I presented a similar work, on a different data set at the IISA Conference on Research Innovation in Statistics for Health, Education, Technology and Society during 11th July - 13th July, 2014 at Riverside, California, USA
A more mathematically rigorous version of this work will be presented at the 2015 Joint Statistical Meeting during 8th August - 13th August at Seattle, Washington, USA
Graduate & Professional Student Research Forum

Science
Platform Session B
UNLV Student Union Room 207

9:00 – 9:15am  Michael Picker, School of Life Sciences

9:15 – 9:30am  Amanda Prisbrey, School of Life Sciences

9:30 – 9:45am  Surbhi Sharma, School of Life Sciences

9:45 – 10:00am Andrew Nordin, Department of Kinesiology and Nutrition Sciences

10:00 – 10:30am  Break

10:30 – 10:45am  Carmen Vallin, School of Life Sciences

10:45 – 11:00am  Kenneth Watanabe, School of Life Sciences

11:00 – 11:15am  Cindy Kha, School of Life Sciences

11:15 – 11:30am  Donald McGinn, Department of Mathematical Sciences
*DNA Twisting and VirB: Mechanistic Insight into a DNA binding Protein Essential for Virulence in the Human Pathogen Shigella flexneri*

Michael A. Picker, Juan C. Duhart, Joy A. Immak and Helen J. Wing, School of Life Sciences

*Shigella flexneri* is a bacterial pathogen that causes bloody diarrhea in humans. This bacterium contains a large DNA molecule, the virulence plasmid, which is home to many genes that are responsible for the disease-causing ability of this pathogen. These genes are turned on, or upregulated, by VirB, a DNA binding protein that is essential for the virulence of *Shigella*, but so far, the mechanistic details of this upregulation remain poorly understood. My overall goal is to understand these details. Based on similarity to the closely related protein ParB, I hypothesize that VirB can facilitate changes in DNA supercoiling (i.e. DNA twisting). Here, I show that isolation of a plasmid containing our VirB-dependent gene reporter system in the presence of VirB displays a difference in its supercoiled state compared to the same plasmid isolated in the absence of VirB. This observation does not depend on the presence of other plasmid features or VirB-induced transcription, but instead, depends on the presence of a specific DNA sequence required for VirB-dependent upregulation. Furthermore, the VirB protein alone is unable to facilitate changes in DNA supercoiling, suggesting the involvement of another factor. Future experiments will dissect the role that VirB-dependent changes in supercoiling play in the upregulation of *Shigella* virulence genes and identify any additional factors involved in the elusive mechanism of VirB-dependent regulation in *Shigella*. Thus, the outcome of these and future experiments will enhance our understanding of *Shigella* virulence, and provides an avenue for vaccine development for lasting protection against *Shigella* infections.

Presentations: ASM Regional Branch Meeting April 5, 2014 and the Wind River Conference on Prokaryotic Biology June 4 - 8, 2014
Development of Competence Leads to Mutagenesis in Stressed *Bacillus subtilis* Cells
Amanda A. Prisbrey, Carmen Vallin, John Creech, Holly A. Martin, and Eduardo A. Robleto, School of Life Sciences

Mutagenesis is central to the evolutionary process. We currently view evolution as a gradual process affecting all cells within a population. However, I aim to study an underappreciated part of the evolutionary process, mutations generated during stationary phase within a subpopulation. Stationary phase cultures of *Bacillus subtilis* develop subpopulations that exhibit different survival strategies. One of these subpopulations, known as competence, develops the ability to uptake exogenous DNA. During competence, new alleles can be acquired and recombine into the hosts genome leading to genetic diversity. Published results from my research group have shown that i) defects in genetic factors that control competence (ComK and ComA) result in decreases in mutagenesis in non-growing cells; and ii) the observed decrease is independent of recombination. We speculate that some other mechanism, activated during the K-state, regulated by the transcriptional activator ComK, in which more than just competence genes are activated, is responsible for most of the mutations seen during stationary phase. My project seeks to bring together these separate observations into a coherent understanding of how competence or the K-state leads to increases in mutagenesis. Here we test the hypothesis that the population of cells that develops competence experiences increased levels of mutagenesis during stationary phase.

Presentation: Wind River Conference on Prokaryotic Biology, Estes Park, Colorado, June 4-8 2014
C-Terminome Web-Application: A Tool to Mine the C-Termint of Human Proteome
Surbhi Sharma, School of Life Sciences

Protein-protein interactions are important in regulating various cellular processes. These interactions are mediated through short stretches of amino acid residues present in proteins called as minimotifs. Minimotifs are vary in length from 3-15 amino acids, and are known to have a function in at least one protein. Although minimotifs can be present anywhere in a protein some minimotifs are functional when present at the very end of the proteins called as C-termini region. These functions include post-translational modifications, trafficking, and binding. Based on the computational analysis of the Minimotif Miner3.0 database (database of ~600,000 validated minimotifs), we identified 1000’s of minimotifs present at the C-termini region of the proteins. Based on this observation, we hypothesized that many other proteins also utilize their C-termini functionally. We generated a list of novel C-termini minimotifs for the entire human proteome. We, then, calculated the enrichment scores for each novel C-termini minimotif indicating the likelihood of that minimotif to be a true minimotif. All the information on validated, and novel C-termini minimotifs has been consolidated into a user friendly web-application, C-terminome.

Web link: http://cterminome.bio-toolkit.com/cTerm/
Minimalist vs. Cushioned Running Shoes: Impact Loads Vary with Foot-Strike Pattern
Andrew D. Nordin and Janet S. Dufek, Department of Kinesiology & Nutrition Sciences

The influence of footwear on running injuries receives considerable interest in scientific literature. The re-introduction of minimalist footwear, ostensibly mimicking barefoot running, is often promoted as a means of reducing running injuries, along with transitions in foot-strike pattern, or the manner in which the foot contacts the ground. Interactions among shoe construction, foot-strike patterns, and injury rates continue to be explored due to financial motivations in producing novel footwear and unchanging injury rates. The objective of this research was to investigate the influence of running mechanics, shoe construction, and loading features on potential injury mechanisms in running. Twenty participants were analyzed during fourteen running trials in six separate footwear and foot-strike combinations. Each participant wore standard cushioned and minimalist running shoes during forefoot, mid-foot, and rear-foot running conditions, indicating the first point of foot contact with the ground. A novel multivariate statistical approach was used in quantifying observed loading characteristics. Comparisons were evaluated using three-dimensional loading rate-time profiles for each footwear and foot-strike combination. Two contrasting loading patterns were observed, exposing impact characteristics that varied with footwear and foot-strike. Greater loads were observed during minimalist rear-foot and cushioned forefoot running, while impact attenuation occurred in cushioned rear-foot and minimalist forefoot running. Mid-foot running presented mid-range loading characteristics in each footwear condition. The selection of appropriate footwear therefore appears to be dependent upon preferred individual foot-strike patterns, with alterations in footwear and foot-strike requiring time for adaptation in response to varied loading patterns.

Presentation: 2015 Meeting of the American Society of Biomechanics
Non-B DNA Promotes Genetic Diversity in *B. subtilis* Stationary Phase Cells
Carmen Vallin, Amanda A. Prisbrey and Eduardo A. Robleto School of 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 the Gram positive bacterium *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 prone DNA to damage and, subsequently through low-fidelity repair, to accumulate mutations.

Data thus far is showing a role for a particular type of non-B DNA structure, Stem Loop Structures (SLS), in mutagenesis. When a stable construct was compared to a construct disrupted in its ability to form the SLS, mutation levels were affected. Given that all organisms have sequences with potential for form non-B DNA structures and that these structures have also been linked to genetic instability and disease, it is important to understand their role in mutagenesis.

Presentation: 58th Annual Wind River Conference on Prokaryotic Biology
Tiling Assembly: A New Tool for Reference Annotation Independent Transcript Assembly and Novel Gene Identification by RNA-Sequencing
Kenneth Watanabe, School of Life Sciences

Annotation of the rice (Oryza sativa) genome has evolved significantly since the release of the draft sequence, but it is far from being complete. Several published transcript assembly programs were tested on RNA-sequencing data to determine their effectiveness in identifying novel genes so that the rice genome annotation can be improved. Cufflinks, the most prevalent RNA-sequencing data analysis software, did not identify all the genes suggested by the RNA-sequencing data. To identify additional genes, a heuristic ab initio transcript assembly algorithm, Tiling Assembly, was developed to identify genes based on short read and junction alignment. Tiling Assembly was compared with Cufflinks to evaluate its gene finding capabilities. In addition, a pipeline was developed to eliminate false-positive gene identification due to noise or repetitive regions in the genome. By combining Tiling Assembly and Cufflinks, 767 unannotated genes were identified in the rice genome, demonstrating that Tiling Assembly in combination with Cufflinks proves to be highly efficient for novel gene identification. Benchmark analysis was performed to determine the minimum expression thresholds necessary for accurate gene identification. Genes identified by Tiling Assembly were compared to their corresponding full-length cDNA to determine the accuracy of their identification and whether RNA-sequencing data can be used to accurately determine transcription start and termination sites. In addition, we applied our pipeline to a number of model organisms and identified numerous unannotated genes.

Presentation: Annual Society of Plant Biologists annual International Conference, Portland, Oregon. July 2014
Studying Tadpoles for Insights into Natural Tissue Regeneration
Cindy X. Kha and Ai-Sun Tseng, School of Life Sciences

Frog tadpoles have the ability to fully regenerate its tail after amputation. Their regenerative abilities include rapid regrowth of complex tissues such as nerves, blood vessels, and muscles. In contrast, humans are unable to regrow limbs or other organs after acute loss. Thus understanding the process of natural regeneration may give us insights into why humans lack this ability. To pursue this goal, we use the African clawed frog, *Xenopus laevis*, as our model organism to identify the mechanisms that controls tissue regeneration. *Xenopus* is a popular model for biology studies and tadpoles can fully regrow a new tail within a week. Their genes can also be easily manipulated. Published studies indicate that insulin, a hormone needed for glucose metabolism and cell growth, is required for normal regeneration. Loss of insulin results in defective regeneration. However, the role of insulin in regeneration is unclear. Thus, we hypothesize that insulin activity is important for promoting tissue regeneration. We are studying how changing insulin activity alters regenerative abilities in tadpoles. Our regeneration research will greatly further understanding of why animals recover from tissue injury and damage differently. Furthermore, it may lead to potential new therapeutic methods for regenerative medicine.
Generalized Markoff Equations, Euclid Trees and Chebyshev Polynomials
Donald McGinn, Department of Mathematical Sciences

My research is in analytic number theory, and my research focused on the Markoff equation. The Markoff equation is \( x^2 + y^2 + z^2 = 3xyz \), and all of the positive integer solutions of this equation occur on one tree generated from \((1, 1, 1)\), which is called the Markoff tree. In this talk, we consider trees of solutions to equations of the form \( x^2 + y^2 + z^2 = xyz + A \). We say a tree of solutions satisfies the unicity condition if the maximum element of an ordered triple in the tree uniquely determines the other two. The unicity conjecture says that the Markoff tree satisfies the unicity condition. In this talk, we show that there exists a sequence of real numbers \( \{c_n\} \) such that the tree generated from \((1, c_n, c_n)\) satisfies the unicity condition for all \( n \), and that these trees converge to the Markoff tree. We accomplish this by recasting solutions as linear combinations of Chebyshev polynomials, and showing that these polynomials are distinct. Then we evaluate these polynomials at certain values and use a countability argument.
Graduate & Professional Student Research Forum
Science and Engineering
Platform Session C
UNLV Student Union Room 208A

8:45 – 9:00am  Erica Marti, Department of Civil and Environmental Engineering and Construction
9:00 – 9:15am  Wyatt Bain, Department of Geoscience
9:15 – 9:30am  Jessica Hartman, Department of Mechanical Engineering
9:30 – 9:45am  Seth Gainey, Department of Geoscience
9:45 – 10:00am Chao Chen, Department of Civil and Environmental Engineering and Construction

10:00 – 10:30am Break

10:30 – 10:45am Sara Gedo, Department of Geoscience
10:45 – 11:00am Kishor Shrestha, Department of Civil and Environmental Engineering and Construction
11:00 – 11:15am Jonathan Baker, Department of Geoscience
11:15 – 11:30am Sogol Pirbastami, Department of Mechanical Engineering
A Hazardous Ozone Disinfection Byproduct: NDMA Formation and Implications for Water Reuse
Erica Marti, Jacimaria Batista and Eric Dickenson, Department of Civil and Environmental Engineering and Construction

N-nitrosodimethylamine (NDMA) is a probable human carcinogen and may be a regulated drinking water contaminant in the future. Although there are some industrial sources, the main process for this contaminant to enter the water is as a disinfection byproduct. Substantial research has focused on NDMA formation with chloramination, but recent studies show direct formation during ozonation of surface water and treated wastewater. NDMA formation may be a significant barrier to ozonation in water reuse applications, particularly for potable reuse. This research focused on identifying a set of model compounds, or precursors, which forms NDMA with high yields. Several factors affecting formation were investigated, including: bromide presence, ozone dose, and addition of hydrogen peroxide. Comparisons in NDMA formation were made between: formation associated with molecular ozone vs hydroxyl radical, formation in ultrapure water vs wastewater, and formation due to chloramination vs ozonation. Results show that bromide concentration was significant for some model compounds, but did not enhance NDMA formation for the other precursors. This suggests that different pathways may be involved in NDMA formation. Molecular ozone is the dominant oxidant leading to NDMA formation for the model compounds and the presence of hydroxyl radical scavengers could lead to increased NDMA concentrations. Formation due to chloramination was minimal compared to formation due to ozonation. Pre-chlorination was investigated as a mitigation strategy. Initial results suggest that it may be highly effective at reducing NDMA formation due to ozonation or chloramination. However, trade-offs in disinfection byproducts must be evaluated.

Presentation: Water Environment Federation Technology Exhibition and Conference (WEFTEC), September 2014
Established Models of Hydrothermal Fluid Distribution around Porphyry Deposits: The Application of Fluid Inclusion Research to Porphyry Exploration
Wyatt M. Bain, Jean S. Cline, Tim M. Marsh, Department of Geoscience

Porphyry deposits are the source of 60% of the world’s Cu resources and a main source of Mo, W, Sn, Ag, and Au. The Kabba prospect in NW Arizona has many of the hallmarks of a major porphyry deposit but to date no exploration program has even discovered a major resource in the area. However, recent models have hypothesized that the shallow, mineralized part of this porphyry system might have been separated from the deeper root zones of the system by the N-S trending Hualapai Normal fault that runs through the center of the prospect. This hypothesis is supported by the 2010 discovery of an area of porphyry style mineralization under Quaternary gravels in the valley to the east of the Hualapai fault, and the presence of alteration minerals in the rocks west of the Fault that are characteristic of the deep root zones of other know porphyry systems. This study tests the fault hypothesis by comparing the temperature, pressure, and chemical (T-P-X) characteristics of fluid samples trapped in rocks from the Kabba prospect to fluid data taken from other porphyry systems to determine how similar the fluids in the Kabba system are to those found in productive porphyry deposits. Data from this study is still being processed but preliminary results show that the T-P-X condition of samples from both sides of the Hualapai fault have a general pattern that is consistent with the two areas of having formed as part of a single porphyry-like hydrothermal system, and are also consistent with the hypothesis that the two areas represent the deep roots and intermediate zones of a single faulted porphyry system.

Presentation: Pan-American Current Research on Fluid Inclusions (PACROFI), June 2014
Neutron Spectroscopy with Scintillation Detectors Using Wavelets
Jessica Hartman, Department of Mechanical Engineering

Nonproliferation goals are an integral part of the nuclear industry. As more attention is focused on the need to monitor and control nuclear material, the demand for efficient and accurate methods of identifying radiation sources also increases. This research focused on the development of a neutron spectrum unfolding method capable of identifying nuclear material based on detector measurements. Assuming detector output is the superposition of the response functions of all neutrons entering the detector, the response to a polyenergetic flux can be unfolded to produce a neutron spectrum. This spectrum can then be applied to identify sources. For this research the EJ-299-33A plastic scintillator was used, but the method can be adapted for use with any scintillator material. Verification testing of the unfolding method was carried out using neutron response measured using the Van de Graff accelerator at the University of Kentucky using the EJ-299-33 scintillator. This machine provided a range of monoenergetic neutron beams, making it possible to measure the response functions of the EJ-299-33A plastic scintillator detector to neutrons of specific energies. The polyenergetic response of a plutonium-beryllium (PuBe) source was measured using the source available at the University of Nevada, Las Vegas. Neutron spectrum reconstruction was carried out using the experimentally measured response functions. Data was processed to allow for source characterization based solely on the neutron response. The unfolding technique was implemented using the measured monoenergetic response functions and the PuBe response to produce an identifiable energy spectrum for the PuBe source.
Weathering Profiles at Mawrth Vallis Yield Insight into the Aqueous History and Potential Habitability of Mars
Seth Gainey and Elisabeth Hausrath, Department of Geoscience

Although abundant evidence exists for liquid water on Mars, the duration and characteristics of that liquid water remain under-constrained. The duration of liquid water, in particular, is important to questions of habitability, as the longer there was liquid water on Mars the more conducive it might have been to habitability. On Earth, thickness of weathering profiles can be quantitatively modeled, with inputs of measured geochemical parameters, and known durations yielding observed profile characteristics. Putative weathering profiles have also been previously modeled on Mars, yielding information about duration and characteristics of alteration. Of these putative weathering profiles, Mawrth Vallis may represent one of the largest alteration fronts on Mars. The stratigraphy of the Mawrth Vallis region is generally characterized by an Al-rich unit dominated spectrally by kaolinite and/or montmorillonite, overlying a Fe/Mg-rich unit(s) spectrally composed of nontronite and/or saponite. In order to interpret the potential implications of a weathering profile in the Mawrth Vallis region and other locations on the martian surface, we used the reactive transport model CrunchFlow, to forward-model alteration of nontronite, saponite and mixed deposits of clay minerals under soil-forming conditions to form an alteration front, such as that potentially observed in Mawrth Vallis. The results of these models suggest that the formation of an Al-rich capping unit observed in the Mawrth Vallis region can form from the dissolution of the Fe/Mg-rich underlying clay minerals.

Hydrologic evaluation in a Snow Dominated Watershed Using a Process Based Model
Chao Chen, Department of Civil and Environmental Engineering and Construction

Hydrologic processes are susceptible to meteorological conditions and spatial variation, especially in snow dominant areas. In order to evaluate the hydrologic processes in a snow dominant area, an alpine watershed, the Lehman Creek watershed, was studied. Lehman Creek is located in east of Nevada, and originates in high altitude mountains covering areas of snow and ice, which results in high snowmelt runoff. In this study a physically based, distributed-parameter model, the Precipitation-Runoff Modeling System (PRMS), was employed. Daily data was collected for streamflow, precipitation, temperature and solar radiation from four observation stations for different periods ranging between 1947 and 2012. Results showed less than 13% error in simulated streamflow for model calibration and validation except in 2011, due to the miss measurement in high runoff bypasses. The results showed that the shape and magnitude of runoff were successfully captured with low winter flow and peak summer flow. Parameter sensitivity analysis indicated temperature is a critical factor that an increasing portion of rain to snow, in precipitation leads to a pattern change in streamflow during both winter and spring. The results showed a successful application of hydrologic evaluation in a snow dominant area, using a physical process based model. The model is used to estimate future streamflow in Lehman Creek in response to climate change, and it is also used to estimate Lehman Creek’s contribution to the groundwater recharge in the Snake Valley.

Influence of Larrea tridentata on Chloride Concentration in Shallow Desert Soils
Sara Gedo, Department of Geosciences

Estimating groundwater recharge in arid regions is difficult. Alternating patterns of high evaporation and high precipitation cause varying soil properties, which control the soil’s ability to retain moisture near the surface. The chloride mass balance (CMB) method has been used to estimate paleo-recharge in arid regions. The method interprets vertical profiles of chloride (Cl-) concentration as estimates of past precipitation trends. This method is founded on assumptions that Cl- input from precipitation is spatially uniform, and that infiltrating water moves vertically downward, through a thick vadose zone. Influence from surficial processes is presumed to be negligible, and treated as background noise. However, processes such as biotic activity, micro-topography, and short-term climate effects, (i.e., weather) clearly influence Cl- concentration on short spatial and/or temporal scales. In this study, we consider if the effects of surficial processes propagate downward to significant depths. Field samples will be used to estimate the relative importance of these processes in the near-surface environment, and numerical simulations will be employed to consider downwards propagation of Cl- pulses under conditions of episodic precipitation. Results are expected to determine the depth where surficial processes become negligible. Additional knowledge of processes controlling recharge will result in more complete conceptual models for accurately predicting recharge, and therefore more thorough estimates of regional hydrologic budgets.
An Evaluation of Current Practices of Road Maintenance Contracting Methods
Kishor Shrestha and Pramen P. Shrestha, Department of Civil and Environmental Engineering and Construction

Departments of Transportation (DOTs) in the United States maintain their roads either by using in-house workers or by out-sourcing the works to private contractors. Out-sourcing uses two types of road maintenance contracting methods, prescriptive or method-based contracting (MBC) and performance-based contracting (PBC). This study conducted a survey with all 50 state DOTs and the District of Columbia to determine current road maintenance practices during the last 10 years. The state DOTs responded to questions about factors that influenced their selection of in-house and out-sourcing methods. Further, the survey included questions related to the satisfaction level of DOTs with various benefits of in-house, MBC, and PBC methods. The DOTs rated the satisfaction levels for those three methods with regard to cost effectiveness, schedule advantage, quality delivered, and risk transfer. The survey results indicated that, on average, the respondents were more satisfied with the in-house method in comparison to MBC and PBC methods. The respondents stated that the in-house method yielded high cost savings and schedule effectiveness and provided better quality and low risk to the DOTs. Lessons learned were identified pertaining to these contracting methods.

Presentation: Construction Research Congress, 2014
Building Better Climate Models: When Caves and Computers Collaborate
Jonathan Baker and Matthew Lachniet, Department of Geoscience

How will the global climate system respond to a rapidly warming atmosphere and ocean? Climatologists utilize computer models to forecast the potential impacts of anthropogenic climate change, but these models cannot be validated without accurate reconstructions of historical conditions. To that end, the goal of paleoclimatologists is to provide comprehensive proxy data sets of past global temperature, against which climate models can be tested. When analyzing global temperature changes over the past 2,000 years, and especially the past century, the overlap between modeled and proxy temperature reconstructions validates theoretical approaches with high statistical confidence. There is currently a mismatch in results, however, between these methods during the Early to Middle Holocene (11,600-4,500 years ago), for which proxy data seem to indicate that global temperature was much higher than has been postdicted by climate models. To address this discordance, we present a high-resolution proxy record from Kinderlinskaya Cave in Russia, which recorded changes specifically in winter climate for easternmost Europe over the entire Holocene (11,600 years ago to present). Our data suggest that proxy reconstructions of global temperature are biased toward summer conditions and may not be representative of global patterns. Additionally, modern winters in Eastern Europe are already warmer than at any point in the last 120,000 years. If this interpretation is correct, then computer models may already be closer to reality than current compilations of raw proxy data. By collaborating with climate modelers in reconstructing the past, therefore, we can better forecast Earth’s climatic future.

Presentations:
Geological Society of America Annual Meeting, Vancouver, BC, October 2014
American Geophysical Union Annual Meeting, San Francisco, CA, December 2014
Practical Procedure to Measure Mechanical Properties of Vaginal Tissue
Sogol Pirbastami, Brendan O'Toole and Mohamed Trabia, Department of Mechanical Engineering

Objective: There is a need to better understand the mechanical characteristic of pelvic tissues to develop more compatible biological materials and new mesh materials that would supplement the native tissue repair in pelvic organ prolapse. Towards that goal, we tested sheep vaginal tissues to develop, easily reproducible experimental procedures for measuring mechanical characteristic. Later, these procedures will be adjusted for use on corresponding human tissues.

Methods: The vaginal tissues were obtained from 10 sheep without POP. All sheep were 9 months old; their weight varied between 650 to 667 N. The uniaxial tensile tests were conducted. The force data were collected for each test in addition to using the camera system and the custom software to monitor the associated deformation. Experimental data were synchronized and used to calculate stress and strain values.

Results: The stress-strain curve showed the vaginal tissues exhibit a nonlinear behavior. Based on the tensile and stress relaxation tests, a viscoelastic model for sheep tissue is proposed. The stiffness of anterior showed lower value than posterior wall. Strain rate effect is similar for anterior and posterior sheep vaginal tissue.

Conclusion: Test results confirm both the nonlinear and anisotropic nature of the vaginal tissue. The non-uniform distribution of collagen and elastin fibers explains the nonlinearity. The fiber orientation influences the anisotropy. This research can be a basis for conducting similar testing using human vaginal tissues to assess their mechanical characteristics.
Graduate & Professional Student Research Forum
Fine Arts and Humanities
Platform Session A
UNLV Student Union Room 208B

8:45 – 9:00am  Monique Arar, Department of Music
9:00 – 9:15am  Aurora Brackett, Department of English
9:15 – 9:30am  Joleen Long, Department of English
9:30 – 9:45am  Clancy McGilligan, Department of English
9:45 – 10:00am Kayla Miller, Department of English

10:00 – 10:30am  Break

10:30 – 10:45am Camilla Oldenkamp, Department of Art
10:45 – 11:00am Derek Pollard, Department of English
11:00 – 11:15am Rebecca Robison, Department of English
11:15 – 11:30am Michelle Villanueva, Department of English
11:30 – 11:45am Denise Weber, Department of English
HIP Harpsichords: Historically Informed Performance of Early Keyboard Music
Monique Arar, Department of Music

This video presents a culmination of preliminary research done in Baroque keyboard performance through the selection of works by Bach, Couperin, Scarlatti and Frescobaldi. In the attempt to present a “HIP” or “Historically Informed Performance”, it is essential to understand the performance practices of the period, the instruments that were used, the aesthetic of the time, and the authenticity of the musical score. Research towards this presentation was conducted in 2014 at UNLV, the San Francisco Early Music Society Baroque Music Workshop (funded in part by GPSA and the Greenberg Scholarship) and the Early Music Vancouver Baroque Instrumental Programme.

Presentations: San Francisco Early Music Society Baroque Music Workshop, Sonoma State University, Rohnert Park, California, June 22-28, 2014
Vancouver Early Music Baroque Instrumental Programme, University of British Columbia, Vancouver, Canada, August 3-15, 2014
Hartford, Connecticut 1900: The Story of a Suicide
Aurora Brackett, Department of English

I spent two weeks last summer conducting research in Hartford, Connecticut in support of my novel in progress, The Mirror City. The novel takes place in Hartford in the early 1900s and my primary goal for research was to establish a stronger sense of both place and time for the story. I conducted a majority of my research at the Connecticut Historical Society, combing through old newspapers, maps and books. I mapped the neighborhoods where Jewish immigrants settled, where my characters would have lived, and though most of these neighborhoods are gone, I was able to visit a few sites still intact in the city.

My secondary goal for the project was to research the history of mental health treatment and mental hospitals in Connecticut. The novel is based, in part, on the story of my great-uncle, a young man and immigrant who suffered from mental illness and committed suicide. In support of this research goal, I visited a museum at one of the first mental hospitals in Hartford. The museum, “Myths, Minds and Medicine” is a history of psychiatry in the state of Connecticut, and was incredibly relevant to my project. But the most important discovery I made on the last day of my research, when I stumbled on the obituary for my great-uncle in the archives of the Connecticut Historical Society. The obituary was more a crime story than an obituary, a column-long article full of grisly details and dialogue, true to the sensationalist reporting of the time.
I spent two months living in Asakusa, Taito City, Tokyo, Japan, during which I read several Japanese fiction books translated into English, began researching for my critical paper and translation project, and worked on and revised a draft of my novel. In addition to writing every day, I also visited Kofu Castle, Mount Fuji, Owakudani, Fushimi Inari Taisha, Yasaka Shrine, Kyoto, Ginza, Imperial Palace Gardens, Harajuku, Shinjuku, Senso-ji Temple, Asakusa Shrine, Ueno Park, Tokyo Skytree, Yuigahama Beach, Edo-Tokyo Museum, Kabukicho, as well as attended the Gion Matsuri Parade, Sumida River Fireworks, Hozuki-ichi Fair, and met my great aunt for the first time. I spoke with many Japanese people and expatriates in English and elementary Japanese. Traveling abroad to Japan has and will help me to understand my background as a sansei, a person born in the United States whose grandparents were Japanese immigrants, as well as to understand the differences and similarities between Japanese and American cultures. These understandings have and will help my writing to connect with others and to enrich the point of view that I write from. I will present some writing I composed while abroad, reflecting on cultural differences, and some photographs, as well as present my translation project.
In the last decade, postcolonial gothic fiction has attracted considerable attention. Such fiction “adapts a British narrative form that is highly attuned to the distinction and collapse between home and not home and the familiar and foreign” (Azzam iv). Gothic elements such as hauntings, violence, dangerous sexuality and torture feature prominently in J.M. Coetzee’s novel *Waiting for the Barbarians*, which explores imperial production of a racial or cultural other. As stated by Gaylard, the novel “refuses the appropriation of the other, the indigenous “barbarians”, by Empire, showing instead their inaccessibility to imperial discourse” (10). For the imperial magistrate who acts as the novel’s narrator, the othered barbarians remain inscrutable to various degrees. But while the othering in the novel principally depends on racial or cultural categories, the process also affects characters like the agent of empire whose arrival initiates the story. As a result, the narrator inhabits a fictional world pervaded by a sense of unknowability or inaccessibility, which heightens the sense of the gothic. In this paper, I will describe and analyze the effects of inaccessibility in Coetzee’s novel and its relation to the other, discussed from postcolonial and epistemological viewpoints. I will then show how the tension between the self and the other contributes to gothicness.

Works Cited:


Presentation: PCA National Conference in New Orleans, LA, April 1-4, 2015
As an MFA Fiction candidate in UNLV’s creative writing program, the motivation behind my summer 2014 travel abroad was twofold: utilitarian, as a requirement of my degree program, and more importantly, literary. Ultimately, I used my time in Spain (mostly Alicante) to engage more robustly with the headspace of my novel's protagonist. Though I absolutely flexed and strengthened my Spanish language skills, I simultaneously sought immersion in a culture foreign from myself in order to press the levels of my comfort with being an outsider. My MFA thesis, a Gothic novel, focuses on a protagonist who feels isolated and very much “outside” his surroundings; his status as outsider is enacted in a specifically surreal way. By planting myself in unknown waters without the securities of acquaintances or even language, my time in Spain was saturated with a feeling of distance, both among but disparate from those around me. The obstacles I encountered while submerged in this experience of marginalization worked to bolster my connection with my main character, who never feels he can comfortably move through his environs. As a work of postmodern Gothic amidst the evolution of Las Vegas as a literary landscape, the novel I hope to finish as my thesis at UNLV hinges upon my experiences as “outsider” in Alicante, Spain.
Enlightenment
Camilla Oldenkamp, Department of Art

Making visual art my career choice and having a deep fascination with religion I have often attempted to bridge the valley that seems too often divide the two. By approaching my artwork as more of a foundation in research than in allowing emotions to dictate what type of work I create, I believe I have the potential to bridge this gap.

Gallery patrons enter into the white walls of a frigid art gallery. In the center of the room, hung from the high 25 foot ceiling and 10 feet off the ground is a large, 7 feet in diameter, circle of lights. As you proceed closer you begin to feel the radiating heat produced from the fixture. In order to keep yourself warm in such a chilled space you and the other patrons congregate beneath the warmth of the lights. As you begin to warm you notice a few other works of art along the white gallery walls. You venture out from beneath the warm lights and work your way along the walls reading these segments of text as you go. This research and final art piece will have the chance to not only bring artists and believers together for a safe conversations but even bring together the many religions throughout the city and present this common foundation nearly all religions were built on.

This work goes beyond asking the audience to look at the piece as a work of art and puts them in an environment where they become part of the work itself and in turn part of the conversation.
My presentation will focus on the ways in which Mina Loy’s poem “Brancusi’s Golden Bird” engages the sculptor Constantin Brancusi’s *Golden Bird*. Although Loy’s text can be categorized as an ekphrastic, her response to Brancusi’s work is also a visio–poetic analogue to the physical art object the sculptor constructed. My paper will explore the plastic qualities of the poem by reading it alongside *Golden Bird*. Additionally, it will tease out what is being staked when Loy, carrying forward Italian Futurist and Parisian Dada precedent, moves the text toward what Hugo Ball, founder of the first Dada café, the Cabaret Voltaire, described as the *Gesamtkunstwerk*, or “total work of art.”
In February I was fortunate enough to win a scholarship to the Society of Children's Book Writers and Illustrators Winter Conference in New York City. There I was able to present the first 500 words of my Fiction MFA thesis manuscript to industry editors and agents for feedback, as well as attend several panels and breakout sessions regarding the craft and the professional logistics of Young Adult and Middle Grade writing and publishing. I learned that my Middle Grade novel was actually more suited for Young Adult readers, and thanks to the help I received at the conference, I now have several strategies in mind to edit my manuscript.
Poetry as an Ethical Act: The Human Will in T. S. Eliot’s “Ash Wednesday”
Michelle Villanueva, Department of English

For my presentation, I propose discussing a paper I presented at the Rocky Mountain Modern Language Association conference in Boise, Idaho in October 2014. I received funding from GPSA this past fall in order to attend the conference and present my paper. My presentation would be a 10 minute slideshow outlining the major points of the paper I presented at the conference. The abstract for that paper follows:

In his poem “Ash Wednesday,” T. S. Eliot writes, “Teach us to care and not to care.” Caring and not caring are placed in tension with one another, with both existing alongside one another as lessons the speaker wishes to learn. “Ash Wednesday” is a poem marked by disparate elements existing in tension with one another. This paper explores how “Ash Wednesday” expresses ambivalence as regards time versus timelessness, materialism versus idealism, and the human will versus divine action. In particular, this paper discusses how the poem embraces Augustinian idealism, but not to such an extent that it would discount the material world outright, while also setting forth Thomistic materialism, though it does not go to the extreme of making salvation unnecessary. In refusing to resolve this tension, “Ash Wednesday” avoids the extremes that may come from endorsing one position and rejecting the other, which allows it to affirm the need for divine action while also holding out poetry as an ethical and even virtuous human activity.

Presentation: Rocky Mountain MLA Conference, Boise, Idaho, October 2014
Lowly Saints in Holy Places: Poetry of Humility & Exaltation
Denise Weber, Department of English

We live in the Anthropocene age, a period marked by the effect of human activity on the planet, and citizens all over the world have become increasingly focused on conservation efforts. In my travels to Costa Rica, I paid close attention to the workings of a tourist economy centered in nature: its diverse climates and geographic features hosted a variety of life forms, while resorts and hostels alike facilitated the reduction of waste and the use of eco-friendly products. On the other hand, I found that the gutters in its capital city, San José clogged with litter when it rained. I observed cloud- and rain-forests are still being clear-cut and used for cattle farming and palm plantations. My poetry is often inspired by the complex relationship between humanity and nature. Visiting Costa Rica’s dense jungles and rough beaches was humbling, and my poetry has taken this humility to heart. I write of saints and prophets as regular people, faulted and accessible, transposed into the landscapes I’ve lived in and visited: Las Vegas and Mesa Verde in the U.S., and Belize and Costa Rica in Central America. I will be presenting some of these poems (along with photos), examining the profound within things overlooked, and the vulnerability of our mortal condition.
Graduate & Professional Student Research Forum
Social Science
Platform Session A
UNLV Student Union Room 208C

9:00 – 9:15am  Paige Bockman, Department of Anthropology
9:15 – 9:30am  Wei An, Department of Psychology
9:30 – 9:45am  Katelyn DiBenedetto, Department of Anthropology
9:45 – 10:00am Monica Bolton, Department of Psychology

10:00 – 10:30am  Break

10:30 – 10:45am  Krystal Hammond, Department of Anthropology
10:45 – 11:00am  Antoinette Izzo, Department of Anthropology
11:00 – 11:15am  Kimberly Claudat, Department of Psychology
11:15 – 11:30am  Forest Jarvi, Department of Anthropology
The aim of this project is to explore the iconography of Chalcolithic (c. 3900-2300 cal. BC) Cyprus via ceramic motifs and their potential use in revealing differences between the identities of archaeological groups, as well as the possible causes of such variation. Currently, Cypriot Chalcolithic sites are believed to be largely homogeneous in identity, culture, and practice; however, inter-site variation has not been a focus of investigation. The study focuses on the iconography (the collection of visual art and symbols) of painted motifs found on female ceramic figurines, ceramic figural vessels, and decorated ceramic bowls belonging to five Chalcolithic sites. Multiple statistical methods will be used to analyze the degrees of similarity and difference between the iconographic repertoires of individual sites, and interpretations of some prominent motifs will be offered. While this presentation will only cover preliminary conclusions, it is highly likely that this research will reveal previously unnoticed variations in iconography that suggest differences in site identity. This, in turn, can greatly inform further research into trade, communication, and movement on the island during the Chalcolithic, a period about which very little is known.
Performance or Processing? Effects of Levels of Processing and Divided Attention on Memory-Related Eye Movements
Wei An and Colleen Parks, Department of Psychology

Human eye movements have been shown to index memory, but most studies have focused on item recognition memory. In the present study, we examined the effects of levels of processing (LOP) and divided attention (DA) manipulations on memory-related eye movements in two relational recognition memory experiments. In Experiment 1, participants studied object-landscape picture pairs either deeply or shallowly. At test, they decided which one of three studied objects had been paired with a studied landscape background while their eye movements were recorded. In Experiment 2, the effects of divided attention at study were investigated in a similar procedure. Both LOP and DA manipulations affected memory performance, with participants in the deep (Experiment 1) and full attention (Experiment 2) conditions showing better memory performance compared to those in the shallow (Experiment 1) and divided attention (Experiment 2) conditions respectively. Analyses of participants' eye movements indicated both item memory effects for the individual pictures and relational memory effects for the picture pairings. Finally, only the LOP manipulation in Experiment 1 affected participants' eye movements; the DA manipulation in Experiment 2 had no effect on eye movements. This pattern of results suggests that eye movements at retrieval may reflect both quantity and quality of memory, instead of simply tracking memory strength as found in several previous studies.
Rafts (or floats?) 'Ahoy: Documenting Animal Transportation to Cyprus during the Pre- and Early Neolithic
Katelyn DiBenedetto, Department of Anthropology

It was initially held that the Mediterranean islands did not play a major role in the spread of domesticates from the Near East throughout the Mediterranean, in part because these islands were thought to be late recipients of a substantial human presence that first occurred in the Late Neolithic. Recent research from Cyprus, in particular, has changed this scenario with the documentation of both a Late Epipaleolithic and Early Neolithic presence, raising the question of how these early inhabitants transported not only themselves but also animals to the island. Archaeological evidence suggests that both wild and domesticated animals were introduced during this time frame. None are endemic to Cyprus, which has been oceanic, implying the use of watercraft. Unfortunately, only a few preserved watercraft remains have been found around the Mediterranean. Little research has been done on a cross-cultural comparison of the type of watercraft technology used to transport animals. The purpose of this paper is to present results from a study using electronic Human Relations Area Files (eHRAF). While ethnographic studies cannot definitively settle this issue, combined with the current available archaeological evidence, it can provide stronger models for how the earliest inhabitants might have transported animals to Cyprus.

**Interactions of Behavioral Training and Ketamine Administration on Changes in Parvalbumin Positive Neurons**

Monica Bolton, Chelcie Heaney, Andrew Murtishaw, Michael Langhardt and Jefferson Kinney, Department of Psychology

Ketamine is a high affinity non-competitive antagonist of the ionotropic N-methyl-D-aspartate (NMDA) glutamate receptor. Numerous recent clinical studies have demonstrated a rapid-acting antidepressant effect of subanaesthetic ketamine. In preclinical studies, such as those performed in our laboratory, chronic (15 days) subanaesthetic administration of ketamine resulted in learning and memory deficits in rodents. We have also observed an increase in the number of and altered position of parvalbumin (PV) positive neurons in the CA3 field of the hippocampus in ketamine treated animals. Our timeline of the change in PV neuron number may be related to recent data indicating an antidepressant role of ketamine. However, the mechanisms by which ketamine exerts its effects is not known. In the current study, we were interested in if the change of PV neuron number and position observed in previous studies may influence antidepressant like behavioral changes due to ketamine. We performed the forced swim test to the groups of rats receiving 15 days of saline or ketamine. Results indicate that chronic ketamine administration without behavioral testing did not result in an increase in the number of PV neurons. Similarly, no differences in PV neuron position were observed in these studies. These data indicate that behavioral engagement throughout the course of ketamine administration is necessary in order to alter PV neuron number and position. In addition, our data demonstrate that in the absence of the change of PV neuron number chronic ketamine increased struggle time in the forced swim test versus controls.

Presentations:
Society for Neuroscience, Washington, DC, November 15-19, 2014
American Chemical Society, Las Vegas, NV, November 22, 2014
Young Earth creationists view the natural world in a manner far different from the average anthropologist. Very little secular media support a Young Earth creationist perspective. Therefore, pursuant to conveying the world in a manner that is in keeping with their worldview, Young Earth creationists have produced magazines and other forms of media that specifically address science and theological topics relating to the age of the earth as well as archaeological finds relevant to the veracity of biblical texts. From Angkor to the American Southwest, Young Earth creationists have used archaeological discoveries to attempt to validate the first ten chapters of the book of Genesis. Additionally, art and figurines from a number of sites have been used to support Young Earth arguments for human coexistence with dinosaurs. This paper will discuss how those with a Christian religious identity paired with Young Earth creationist views interpret archaeological discoveries.
Identity as a Predictor of Affective Responses in Polyamorous and Monogamous Individuals
Antoinette Izzo, Department of Anthropology

Identity is a powerful construct that not only informs who we are as individuals, in relationships, and across cultures, but also influences behavior and affect (such as jealousy). In recent decades, polyamory, the practice or desire of having concurrent and meaningful romantic, sexual, or otherwise intimate relationships, marked by transparency and consent of all partners’ has emerged as a distinct relationship orientation identity juxtaposing conventional mating strategies (i.e. monogamy, serial monogamy, and cheating) in the U.S. and other developed countries. But even among those who self-identify as being polyamorous, there is great variation in the ways and extent in which this identity manifests in lived experience.

Despite an abundance of anecdotal and increased public discourse about various forms of consensual non-monogamy (CNM), these relationship strategies have received little empirical attention compared to their mononormative counterparts. As a result, little is known about polyamory as germane to the psychology, emotionality, and perceptions of the individual, nor as a distinct social identity. This present study captures variations in situational affect in relation to the extent of monogamous and polyamorous identity. A nonrandom convenience sample of adults took part in the study (N=628). As expected, results from regression analyses revealed that across numerous independent variable, relationship orientation identity was the single most predictive factor of self-reported jealousy, and greater degrees of polyamorous identification were significantly related to decreased self-reports of jealousy. Results are interpreted in light of social identity theory.
Social Physique Anxiety, Body Surveillance, Ethnic Identity, and Bulimic Symptoms among Mexican American Women
Kimberly Claudat and Cortney S. Warren, Department of Psychology

Introduction: A growing body of research suggests that social physique anxiety is associated with disordered eating. However, the extent to which cultural factors, such as ethnicity and ethnic identity, influence this relationship remains unexplored. The purpose of this study was to examine the relationships between social physique anxiety, body surveillance, and bulimic symptomatology in a sample of Mexican American women. We also examined whether ethnic identity moderated the relationship between social physique anxiety and bulimic symptoms and the relationship between body surveillance and bulimic symptoms.

Method: Participants were undergraduate women who self-identified as Mexican American (N = 206, Mage = 19.57). The majority of the study sample consisted of second generation Americans (N = 136). Participants completed self-report measures of study variables online in exchange for course credit.

Results: Path analysis results indicated that social physique anxiety contributed to bulimic symptoms both directly and indirectly through body surveillance. Moderator analyses indicated that ethnic identity was not a significant moderator of the core relationships of interest.

Conclusions: Results highlight that social physique anxiety and body surveillance may contribute to disordered eating among Mexican American women; and that ethnic identity may not significantly influence these relationships in this population.

Presentation: Annual Meeting of the Eating Disorders Research Society, October 2014
Picrolite Carving in Neolithic Cyprus: An Introduction
Forrest Jarvi, Department of Anthropology

Picrolite, a fibrous green stone originating in the Troodos mountains on the island of Cyprus, appears in the archaeological record almost from the very earliest sites on the island. Thus far, few publications have addressed the material from anything but a descriptive perspective. Research at the Aceramic Neolithic site of Kritou Marottou Ais Giorkis has uncovered a wide variety of picrolite artifacts since excavations began in 1997. Preliminary experimental studies have begun to explore the ease of both obtaining and manipulating the material using only local materials and unassisted manpower. Excavations in 2013 and 2014, the latter of which was funded in part by the UNLV Graduate & Professional Student Association, have been instrumental in broadening the scope of information available on the stone. Other members of the excavation crew, including UNLV students Michael Stukas, Trent Skinner, and Katelyn DiBenedetto, have assisted me in collecting information on the potential geological sources and carving techniques necessary to generate the variety of picrolite artifacts found at Kritou Marottou Ais Giorkis and other contemporary and later sites on the island. This presentation will discuss the existing publications on the material, their strengths and weaknesses, and the future directions of study necessary to give a more holistic look at the material and its social, geographic, and archaeological contexts.
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Self-infliction of Pain as Reputational Commodity
Matthew Martinez and Pierre Lienard, Department of Anthropology

Ethnographers have extensively documented societies where high-risk and painful religious activities can be found. Much attention has been given to extraordinarily painful performances featuring religious practitioners deliberately harming themselves in front of audiences. However, there has been no systematic cross-cultural study looking at the motivations and rationale for such practices. We propose that such institutions constitute coordination signals particularly efficient in some socio-political landscapes. Data gathered from the Human Relations Area Files make apparent the sociological, demographic and environmental correlates of deliberate painful and public (religious) practices. These practices are typically found in tribal and modern societies of moderate to large sizes. These societies are characterized by weak formal political institutions, restricted economic opportunities, low upward social mobility, and often, rigid status hierarchies. In such constrained social worlds, costly acts involving self-harm may serve to bolster one’s reputation and standing when alternative means to do so are scarce or unavailable. Engaging in such displays affords individuals the means to change others’ perception of the formers’ respectability and resourcefulness and of their relevance for particular situations demanding the specific skills advertised in the painful public performances: strength of will, fearlessness, fierceness, resoluteness and readiness for extreme actions if a situation were to call for it.
Chronic LPS-induced Inflammatory Response in a Diabetic Model of Alzheimer’s Disease
Andrew S. Murtishaw, Chelcie F. Heaney, Monica M. Bolton, and Jefferson W. Kinney, Department of Psychology

Alzheimer’s disease (AD) is a neurodegenerative disorder of unknown etiology. Only a small proportion of AD cases are due to genetic mutations (familial AD), whereas the vast majority of cases are late onset and sporadic in origin. The cause of sporadic AD (sAD) is likely multifactorial, with interactions of external factors, biological, and genetic susceptibilities that contribute to the onset and progression of the disease. Diabetes Mellitus (DM) and neuroinflammation are two of the most common risk factors that have been implicated in sAD. In order to evaluate possible interactions between DM and inflammation in AD, we are investigating the effects of neuroinflammation in a diabetic-model of sAD on behavioral and pathological markers. Previous research in our lab has demonstrated that a one-time acute inflammatory response (LPS administration) in a diabetic animal model produced subtle improvements in a spatial learning task. Our data further demonstrated that diabetic animals that underwent the immune activation displayed significantly reduced elevation of oligomeric beta-amyloid compared to the diabetic alone group. The current investigation is directed at determining the effects of a chronic inflammatory response on diabetic-induced deficits relevant to AD. One week following the onset of diabetogenic compound, LPS was administered twice per week for 8 weeks in order to chronically activate the immune system. Learning and memory was examined in the novel object recognition and Morris water maze tasks, following which hippocampal tissue will be examined for pathological markers of AD.

Presentations:
A Natural History of the Drag Queen Phenomenon
Michael Moncrieff and Pierre Lienard, Department of Anthropology

The drag queen phenomenon has drawn much attention over the past decades. Much of the research has focused on the sociopolitical motivations to perform in drag, such as the critique of traditional gender roles and queer political militancy. Although, interesting, such interpretive descriptions of Drag Queen practices do not easily account for the emergence of the phenomenon with its characteristic traits of hyperbolic depiction of womanhood, and aggressive and exaggerated behavioral expression. We argue that drag performance is best understood at an individual and, more specifically, psychological level. Signaling theory has provided the theoretical framework for better explaining evolutionarily puzzling human behaviors. However, this theoretical framework has not been systematically employed for the scientific study of the drag queen phenomenon. Signaling theory provides a relevant framework to explain why marginalized individuals in the gay male community find it attractive to engage in a drag queen lifestyle given the reputational benefits they stand to gain. Typical organizational features of the gay community play a role in the emergence of the phenomenon. Data collected from a gay male population and from a broader U.S. population supported a costly signaling framework for understanding the drag queen phenomenon. Further implications of the findings will be discussed.

Presentation pending: The NorthEastern Evolutionary Psychology Society Conference, April, 2015
Serious Drinking Games: Christian Men’s Negotiation of Corporate Drinking Practices and Religious Identity in South Korea
Alex Nelson, Department of Anthropology

In South Korea Christian men face a dilemma when invited to engage in corporate drinking. If they participate fully they have the chance to compete for status and intimacy among their colleagues. The rules of this competition or “serious game” (to use Ortner’s concept) are derived from a configuration of practices reinforced by naturalized social structures that form the basis of what Connell calls “hegemonic masculinity.” Through the subtle status competition inherent in corporate drinking, participants not only enjoy a sense of camaraderie and stress relief but vie for information and opportunities which can lead to advancement in one’s career. However, Protestant Christianity in Korea discourages drinking by its members, resulting in the belief, held by Christians and non-Christians alike, that Christians should not drink. Whether or not one drinks alcohol is also a proxy indicator of religious sincerity and a marker of one’s Christian identity. Thus when a Christian man is invited to engage in corporate drinking, he is forced to choose between reinforcing his identity as a sincere Christian, and claiming the benefits of a central ritual of Korean social life that has serious implications for one’s career and relationships. Using ethnographic data collected during pilot studies in Seoul in 2013 and 2014, this paper investigates the engagement of Christian men in these processes of identity negotiation, illuminating variation throughout men’s life course and the broader implications of the deceptively simple decision of whether and how much to drink and the pressures weighing on that decision.

Do People Hear Multiple Levels of Metrical Hierarchies in Music?
Jessica E. Nave-Blodgett, Erin E. Hannon and Joel S. Snyder, Department of Psychology

Humans are capable of perceiving a steady beat in auditory patterns such as music and using this information to make perceptual judgments. However, little is known regarding our ability to hear multiple levels of time simultaneously. The hierarchical patterning of time (meter) can be used to predict forthcoming patterns in music, aid in synchronizing group performances, and guide dancing. Yet we do not know the capabilities of metrical attending in adults and children. In this study, we presented listeners excerpts of ballroom dance music paired with metronomic click tracks. The fit of the click track to the musical excerpt was manipulated with the beat- or measure-level of the click track either synchronous or asynchronous with the beat and measure in its paired musical excerpt. This created four conditions — beat and measure asynchronous (BA/MA), beat synchronous and measure asynchronous (BA/MS), beat synchronous and measure asynchronous (BS/MA), and beat and measure synchronous (BS/MS) to the musical excerpt. Participants rated how well the click track matched the music. We presented this task to college-aged musicians and non-musicians to children 5-10 years old. In adults, we found a main effect for beat synchrony, and an interaction between beat- and measure-level synchrony. Participants rated beat and measure-synchronous (BS/MS) click tracks as fitting better than beat-synchronous (BS/MA) alone tracks. In children, we found a main effect of beat synchrony. Children did not display an interaction between beat and measure. The development of metrical perception may take many years and not complete until sometime in late adolescence.

Presentation: New England Sequencing and Timing (NEST) Conference, University of Massachusetts, Amherst, March 7, 2015
Osteoarthritis is one of the more ubiquitous and abundant forms of pathology seen on ancient material. Osteoarthritis (OA) has a complex etiology with variable clinical characteristics. Documenting it is important because it may shed light on aspects of lifestyle (e.g. occupational), and social and cultural habits. Osteopathology studies conducted on modern, documented skeletal collections can add an important dimension. The aim of this paper is to present patterns of OA in the elbow and knee associated with both primary and secondary causal factors related to the development of the condition in a modern skeletal collection. Additionally, this paper discusses how different factors may contribute in the development of OA, and how these should be considered by the bioarchaeologists when interpreting OA in ancient populations. The objective of this paper is to showcase that advanced age is not necessarily the only causal factor, nor is it the only reason for the presence of OA.

Presentation pending: SAA in San Francisco, April 2015
Ethnic and American Identity as Correlates of Eating Pathology in College Women
Liya Rakhkovskaya and Cortney S. Warren, Department of Psychology

Background: According to popular racial and cultural formation theories, ethnic identity is defined as the process of identifying with the culture and practices one’s ethnic group, while American identity is defined as the process of identifying with the culture and practices of the United States. Ethnic identity and American identity are positively associated with mental health in ethnic minority and European American individuals, respectively. Furthermore, a growing body of research suggests that ethnic identity is associated with diminished eating pathology in minority women. However, the protective effects of ethnic identity against eating pathology are unexplored in European American women. In addition, the relationship between American identity and eating pathology is unexplored in all ethnic groups.

Method: To expand our understanding of these constructs, this study examined the relationships between ethnic identity, American identity, thin-ideal internalization and eating pathology in 1018 ethnically diverse college women. Participants completed questionnaires online for course credit.

Results: Results indicated that ethnic identity moderated the relationship between thin-ideal internalization and eating pathology for African Americans and Asian Americans, such that the relationship was weaker for women with strong ethnic identity. In contrast, American identity did not predict or moderate eating pathology. Nevertheless, American identity was a significant positive correlate with eating pathology and/or thin-ideal internalization in all ethnic groups.

Conclusions: Overall, these findings suggest that ethnic identity serves as a protective factor against eating pathology, while American identity may be a factor of risk, and that ethnic identity and American identity are related but distinct constructs.

Presentation pending: International Conference for Eating Disorders (ICED) in Boston, MA, April 24, 2015
Is the Romantic/Sexual Kiss a Human Universal?
Shelly Volsche, Department of Anthropology

Scholars from a wide range of human sciences have become interested in the romantic/sexual kiss. This research, and its public dissemination, often includes statements about the ubiquity of kissing, particularly romantic/sexual kissing. Furthermore, it has been suggested that romantic/sexual kissing is an evolutionary adaptation as part of human mate selection. Yet, to date there is no evidence to support claims that the romantic/sexual kiss is a human universal. Employing standard anthropological methods, this paper is the first attempt to use a large sample to document the presence or absence of the romantic/sexual kiss across cultures. Despite frequent depictions of kissing in a wide range of material culture, we found no evidence that the romantic/sexual kiss is a human universal or even a near universal. The romantic/sexual kiss was present in a minority of cultures sampled (45.8%). Moreover, there is strong relationship between the presence of the romantic/sexual kiss and a society’s relative social complexity: the more socially complex the more likely romantic kissing is present.

Graduate & Professional Student Research Forum  
*Social Science*  
Platform Session C  
UNLV Student Union Room 211

9:15 – 9:30am  Sarah MacIntosh, Department of Anthropology
9:30 – 9:45am  Emma Ross, Department of Psychology
9:45 – 10:00am William Willis, Department of Anthropology

10:00 – 10:30am Break

10:30 – 10:45am Christina Vanden Bosch der Nederlanden, Department of Psychology
10:45 – 11:00am Aaron Woods, Department of Anthropology
11:00 – 11:15am Davor Zink, Department of Psychology
11:15 – 11:30am Stefanie Moyinhan, Department of Psychology
Technological changes often mark or parallel societal development and more importantly, may reflect larger changes in sociopolitical and economic domains. As societies advance technologically, venues emerge for new crafts and specialization, and new patterns of sociopolitical and economic organization may evolve. This paper chronologically presents major technological developments from the Pre-Pottery Neolithic A period (circa 10000 to 9000 BCE) to the Middle Bronze Age period (circa 2500 to 2000 BCE) using documented archaeological evidence in the Near East in general and Anatolia (present-day Turkey) in particular. Each societal transition is associated with specific sociopolitical and economic domains that reflect new adaptations in architecture, ceramics, lithics, and subsistence strategies. I probe how these technological advancements stimulate social change as well as how these new technologies can accelerate the rate at which social organizations may progress from hunter-gatherer bands to complex societies. Furthermore, I investigate the potential reasons and decisions that may have driven modern humans to rapidly adopt and incorporate selected new technologies like lithic blades and the potter’s wheel, while certain technologies were selected to progress at a slower rate like bone, antler, and ivory technologies. I seek to demonstrate that selectively adopting particular technologies became a driving force for social change at varying rates throughout prehistory.
Depression and Dissociation as Predictors of Posttraumatic Symptoms among Community Youth
Emma Ross, Christopher Kearney and Kyleigh Sheldon, Department of Psychology

Childhood maltreatment is associated with increased risk for lifetime and current PTSD. Maltreated youths with PTSD have significantly more comorbid diagnoses than maltreated youths without PTSD, especially with respect to internalizing disorders such as depression and dissociation. This study examined depression and dissociation as predictors of posttraumatic symptoms among a large (N = 227), ethnically diverse, and gender balanced sample of maltreated youths. In addition, the present study evaluated individual subscales on prominent depression and dissociation instruments as unique predictors of posttraumatic symptoms for this population. Participants consisted of youths in DFS custody referred for psychological evaluation following removal from their primary caregiver for reasons such as neglect and sexual maltreatment. Multiple regressions revealed dissociation and depression as significant predictors of PTSD symptoms. Post-hoc analyses of ADES and CDI subscales revealed anhedonia to be the single best predictor of PTSD symptoms, followed by Dissociated Relatedness, and Negative Mood, with all three accounting for over 27% of the variance in PTSD symptoms. Results supported the main hypothesis but suggest that anhedonia, negative mood, and depersonalization/derealization may be equally important risk factors for PTSD symptoms as the larger constructs of depression and dissociation, themselves. Given that depression and dissociation are enormous constructs and can thus manifest differently from one individual to the next, isolating specific predictors of heightened PTSD symptoms for maltreated youths is critical because it facilitates more accurate identification of victimized youths at highest risk for PTSD.

Presentation: Association for Psychological Science (APS) Annual Convention, May 24 2014
The Role of Water Salinity in Limestone Tempered Logandale Gray Ware Ceramic Production in the Moapa Valley, Nevada: An Experimental Approach
William Willis and Karen Harry, Department of Anthropology

Limestone has been shown to be an advantageous temper to use in utility vessels due to its ability to affect factors that mitigate problems caused by heat expansion and thermal shock during the use cycle of ceramics. Specifically, limestone alters the characteristics of the clay, allowing for the manufacture of thinner walled vessels. Additionally, it has similar thermal expansion characteristics as clay itself. However, it has been noted that limestone temper has a propensity to spall, thus compromising the structural integrity of the vessel. It has been demonstrated that the use of salinized water in the manufacturing process precludes such spalling. Through experimental means, this paper explores the potential use of salinized water sources in the production of Logandale wares that appear during the Basketmaker III period in Southern Nevada. The question of whether the Muddy River contains enough salt to counterbalance the spalling of limestone temper during firing is investigated, and the constraints around the necessary salinity of water needed for optimum results is explored.

While teasing apart speech and song may not be difficult in adulthood, it is possible that children must learn to differentiate these two classes of human communication. In infancy, the difference between speech and song is less stark and infant-directed speech has even earned the nickname “musical speech.” We organize the sounds around us into categories of auditory objects to help form expectations when novel exemplars of a category are encountered (Gelman & Meyer, 2011). Categorical knowledge of speech and song may allow listeners to selectively attend to the relevant acoustic characteristics for extracting meaning in music and language. Thus, successful categorization of speech and song may be an important step in the development of language and music processing. Children (4-, 6-, & 8-year-olds) and adults categorized spoken and sung sentences that were closely matched for average F0, F0 range, and total duration in addition to two ambiguous types of speech: infant-directed speech and ambiguous speech that transform to song. Children and adults readily differentiate between speech and song with greater percentage of song ratings for sung sentences than spoken sentence (Adults: 100% vs. 11%; Children: 82% vs. 12%). Adults perceive ambiguous excerpts as more song-like than speech (24%), while infant-directed speech is perceived as song less than 1% of the time. Children show a similar pattern of results, but the pattern varies with age. Greater F0 stability, longer average duration, and higher pitch predicted listeners’ ratings. Rhythmic characteristics in the categorization of speech and song will also be discussed.

Presentation: Auditory Cognitive Neuroscience Society (ACNS), January 2015
Evaluating Land Use in the Mojave Sink: Survey Data from Afton Canyon, San Bernardino County, California
Aaron Woods, Barbara Roth and Katelyn DiBenedetto, Department of Anthropology

The primary objective of this research project is to assess the function of sites located on the rim and plateau above Afton Canyon in the Mojave Desert to determine how they fit into regional patterns of subsistence and settlement defined during previous work in the area. Archaeological sites identified during a recent survey include multi-component artifact scatters, lithic reduction areas, and hunting blinds. These sites provide new information on prehistoric use of Afton Canyon. We present the survey results, discuss site locations and function, and reconstruct patterns of occupation in the canyon. The connection between sites in Afton Canyon and other sites in this portion of the Mojave Desert is explored as part of an on-going effort to better understand regional prehistoric land use in the Mojave Sink.

Presentation: The 34th Great Basin Anthropological Conference, October 15-18, 2014
Pending: The 80th Annual Society for American Archaeology Meetings, April 15-19, 2015
Sensory and Motor Deficits in Spanish Speaking Individuals with Schizophrenia
Davor Zink, Liza E. San Miguel and Daniel Allen, Department of Psychology

Research suggests individuals with schizophrenia (SZ) present with sensory and motor deficits. In Puerto Rico, comprehensive neuropsychological assessment of SZ occurs infrequently, so further investigation of sensory and motor deficits is needed. This study examined sensory and motor functions in a sample of Hispanic normal adults and individuals with SZ.

The sample consisted of 81 Spanish speaking individuals (40% female; mean age 36) divided into a normal control group (NC) (n = 59) and a SZ group (n = 22). The Dean-Woodcock Sensory and Motor Battery (DWSMB) was administered in Spanish to all participants. The DWSMB consists of nine tests that assess auditory, visual, and tactile acuity, and nine tests that measure gross and fine motor skills, balance, expressive speech, grip strength, coordination, and lateral preference. Significant differences were expected between the NC and SZ groups, with the SZ group performing worse than controls.

T-tests comparing groups on the 35 DWSMB items indicated significant differences for 21 items after controlling for multiple comparisons (alpha level < .002). The SZ group performed significantly worse than controls. T-scores ranged from 3.54 to 8.39. As hypothesized, individuals with SZ performed worse than controls on most of the DWSMB tests. Findings suggest sensory and motor deficits identified in English speaking individuals with schizophrenia were also present in this Hispanic sample, and the DWSMB is useful for evaluation of these deficits. We were unable to determine whether these deficits were a primary feature of the SZ itself, or might be caused by secondary influences (e.g., antipsychotic medication effects).

Inner Experience during Marathon Running
Stefanie Moynihan and Russell Hurlburt, Department of Psychology

In the past, sport psychology researchers have primarily used self-report measures, specifically questionnaires, to explore the general experience of marathon running. Because this procedure is widely accepted among researchers, there is little skepticism as to whether marathoners' self-reports of their experiences are accurate. Such studies have drawn conclusions regarding relationships between experience factors and marathon performance. However, there are no studies investigating the actual ongoing inner experience while running a marathon: what people are actually experiencing (thoughts, feelings, sensations, etc.) on a moment-to-moment basis when they are running an intensive race. This study will use a phenomenological approach, Descriptive Experience Sampling (DES), to explore the inner experience of marathoners running a marathon. DES uses a device that emits a random beep via an earpiece. Participants record momentary inner experience immediately after the beep and are interviewed about these experiences within 24 hours. There are three main issues that arise regarding questionnaire use that this study will address using DES: one, questionnaires are retrospective and subjective, asking runners to recall their experience after the fact (sometimes days or months after the fact); second, questionnaire items can be leading, suggesting that runners must have a "this or that" type of inner experience; and third, runners themselves have presuppositions about their running experience, making it likely that reports will be about presuppositions rather than actual experience. This study will be the first within marathoning and inner experience literature in attempting to control for all three issues.
Graduate & Professional Student Research Forum
Social Science and Law
Platform Session D
UNLV Student Union Room 213

9:00 – 9:15am  Joseph Thomson, Department of History
9:15 – 9:30am  Colby Miyose, Department of Communication Studies
9:30 – 9:45am  Anaeita Biesiada, School of Law
9:45 – 10:00am  Kevin Smith, Program of Marriage and Family Therapy

10:00 – 10:30am  Break

10:30 – 10:45am  Jonathan Birds, School of Environmental Studies and Public Affairs
10:45 – 11:00am  Craig Friedel and Keivan Roebuck, School of Law
11:00 – 11:15am  Amber Overholser, School of Environmental Studies and Public Affairs
11:15 – 11:30am  Al Gourrier, School of Environmental Studies and Public Affairs
“Evidence of Existence”: “Evidence of Occurrence”
Joseph Thomson, Department of History

The foundations of the production of various forms of art surround the creation of physical objects that mimic or replicate something else. Photography expanded upon a tradition rich in other well established forms; painting and sculpture as example. Photography has been tightly tied to the development of the technical process.

This presentation will focus on my theory born from parameters of the technical development of this form of expression by dividing images into two distinct categories “Evidence of Existence” or “Evidence of Occurrence”. Primary utilization of single images will be categorized as example for Evidence of Existence and multiple image sets will be structured into Evidence of Occurrence. Whereas the captured images not only record and depict the moment of their taking but reference all moments in between and in a said relationship between the two images being an example of an occurrence in a passage of time without reference to actual time but a reference to process, the process of change. That is to say change not measured in a plus or a minus specifically but measured in an alteration.

This framework will then be applied to photographic evidence surrounding a Las Vegas landmark; the Kiel Ranch. The results will solidify the true age of the adobe building which has historically been extensively incorrectly been dated to 1855.
Unrealistic Weeds of Love and Romance: The Korean Drama and the “Flower Boy” Genre
Colby Miyose, Department Of Communication Studies

The concept of love has intrigued many social critics, and has led them to accuse media of perpetuating unrealistic notions of romance that are unattainable for a healthy and satisfying relationship. Unrealistic expectations of love and romance are a primary cause of relationship dissatisfaction among real couples. It is imperative to critically analyze media sources in order to gain knowledge of how to counter unhealthy notions of romance. Korean dramas (K-dramas) typically present a scenario in which strong mutual love and desire between two people come into conflict with existing sociocultural values. The kkonminam (Flower Boy) genre in particular, caters to young women, and focuses mainly on the romantic lives of young adults, making it a prime genre to analyze Korean portrayals of modern romance. The current study uses Galician’s myths of hegemonic portrayals of love and romance to see if common themes of Westernized “status quo” love can be detected in Korean dramas. The current study examines how love and romance is portrayed in Korean dramas, particularly in the Flower Boy genre, and does so by examining two K-dramas, Boys over Flowers and Flower Boy, Ramen Shop. This study adds to previous literature on hegemonic ideals of love and romance. Ultimately, this study examines ideas of romance in the media to learn what portrayals present themselves in K-dramas, a form of mass media targeted at a younger audience whose views and expectations on romantic love are still forming, and may be influenced by media depictions.
Access to Justice: A Look at Modelama Exports’ Human Rights Violations
Ani Biesiada and David Hales, School of Law

This report documents how the Indian textile company, Modelama’s Exports, violates labor laws without repercussion.

Method: Between December 2014 and January 2015, we conducted field research in Gurgaon, Haryana, India. We interviewed Modelama workers and Modelama’s union representative to identify what their experiences are/have been with Modelama. We interviewed a government official from the labor commissioner’s office to identify how the government addresses worker complaints. Finally, we consulted with an advocate for workers’ rights and reviewed the advocates’ filings.

Results: Modelama uses various tactics to block workers from unionizing to ensure the power disparity between management and workers, where workers are not empowered to assert their rights and bargain with management. In addition, when the United States company, GAP, uncovered human rights violations at Modelama GAP took remedial measures and fired Modelama. GAP’s exit cost approximately 3000 workers their jobs. Moreover, Modelama recruits government officials to engage in corrupt practices that inhibit the worker from recovering remedial relief. Ultimately, the law fails to create an implementation infrastructure that holds employers accountable for violations.

Conclusion: Understanding the economic justification of employers that participate in human rights abuses may help lawmakers anticipate and provide automatic monetary penalties for such actions. Additionally, identifying how U.S. companies past remedies have had a harmful effect may help U.S. companies preemptively screen Indian partners and implement remedial measures that do not adversely affect workers.
Client Selected Music Based Effects on Marital and Couples Therapy
Kevin Smith, Program of Marriage and Family Therapy

This study was designed to examine the interaction of music-based interventions in the therapeutic process of Marital and Couples Therapy. The use of pre-recorded music was found to be under researched within the literature and created a void within the knowledge that clinicians have about how music might enhance effectiveness of treatment. The inclusion of music in this process is not currently known, which lead to this study being conducted. Through a phenomenological lens, the awareness and understanding of how clients react and experience pre-recorded music during the therapeutic process, while still having a selection of options to preserve autonomy, was examined. Sample of participants used in this study were generated from clients seeking therapy at one of the university clinics, the Center for Individual, Couple and Family Counseling.

The findings point to highly effectiveness for consistent musical inclusion in therapy, if utilized with multiple musical selections (i.e. a client selected structure) and non-vocal music tracks. However, limitations such as a lack of saturation in themes around the participants’ experiences and data could mean incomplete perspective and greater themes of experience when allowing for greater length of time in testing. The study shows that much more research should be conducted using music as an adjunct to marriage and couple therapy.
Profiling Proximal Places: How Street Segment Crime Signature Analysis Can Inform Theory and Practice
Jonathan Birds and Tamara Madensen, School of Environmental and Public Affairs

YongJei Lee Braga and Clarke (2014) recently suggested that future high-risk crime place research should determine whether social disorganization theory offers insight and strategy for addressing criminal opportunities at specific places (Weisburd, Groff and Yang, 2012). In response, this paper begins by examining particular criminal event profiles, previously referred to as crime signatures (Eck and Madensen, 2009), within street segments. This paper is, in part, a replication of a study in Cincinnati where similar street segment analysis is underway. These profiles will determine whether (1) different crime types produce different profiles, (2) crime profiles appear to be a function of proprietary place management (the place itself) or proximal place influences (environment around the place) (Madensen and Eck, 2012), and (3) calls-for-service data provide similar results in Las Vegas, NV. We use data from Las Vegas to calculate the Simpson index (concentration measure) for the street segments in our data set to determine what crime concentrations look like at street segments. We discuss the findings within a previous crime hotspot framework and profile the addresses with the highest crime numbers. This study concludes that the Las Vegas concentration patterns were similar to the results found earlier in Cincinnati, even when using a different measure of crime (calls-for-service), and different event types yield similar patterns. Analysis of the worst (10 percent) street segments indicated that crime was attributable to multiple addresses (dispersed) as opposed to a single address (hotpoint). Profiles of the worst addresses indicated that hotpoints mostly consisted of large places where numerous people come together.

The Society of Labour and Development (â SLD), a human rights non-governmental organization, was made aware of significant violations of domestic and international laws in Manesar, India. We dug deeper into these violations by investigating and documenting occupational hazards in the auto industry of Manesar. Our methodology consisted of interviewing workers and government officials about the occupational hazards that they had either experienced or witnessed. We found that many factories simply cannot afford to fully comply with domestic and international occupational safety laws due to lack of capital. Because the government understands this, it allows the factories to operate with unsafe conditions. This results in a number of different injuries and health hazards, including amputation of fingers, inhaling of toxic fumes, and hot aluminum burns. Further, factories often circumvent reporting of accidents to government officials, which results in many accidents going underreported. After documenting these findings, we conducted research and pinned down the specific domestic and international laws that the factories are violating. We hope to provide these violations to SLD to advocate for change. Because the Indian judicial system has already proven inadequate to improve the conditions in the workplace, we are proposing alternative strategies for SLD’s advocacy efforts. In doing so, SLD will have to initiate a grassroots campaign and seek help from both employers and the Indian government.
Despite being rich in resources, a growing population and open spaces, the Old West has often erupted into the “Fuming West” as interest groups and political leaders throughout the West demand that select lands within the region be turned over to their respective states for local control or private sale. During the late 1970s Sagebrush Rebellion this call for local control died out and remained fairly quiet until recently, when task forces have been created throughout the Western states in an attempt to once again demand federal turnover of public lands. Early information hints that the demands of these task forces will likely not be met with large scale policy change or a national discussion about the value and purpose of public lands.

An analysis of public land interest group formal and informal communications from the period surrounding the Sagebrush Rebellion will be compared against current interest group communications using Narrative Policy Framework (NPF). Using content analysis, the researcher will conduct an empirical study of content in terms of strategy and belief systems and will evaluate four features of the narrative; setting, characters, plot and moral. This theoretical framework will shed light on how the comparative use of science, economics and literary elements in the underlying narrative all contribute to the continuous reemergence of this policy issue. Ultimately, communications from both time periods will be examined to determine if and how narrative strategies have changed and if those changes have made this particular policy controversy more actionable.

Presentation pending: WSSA Conference, April 2015
Classification of Metropolitan Communities as a Function of Population and Job Shifts
Al Gourrier, School of Environmental and Public Affairs

Many urban centers across the country for decades now have experienced significant transition in demographics, population, composition of its workforce, and the industries that constitute its economic base. Existing academic literature has documented the shifts in population demographics in urban cities that coincide with shifts in jobs and employment opportunities for these communities. This study examines four metropolitan areas and seeks to develop a classification scheme of cities in terms of population and job growth. As a result of shifts in population and job growth, cities could be classified as winners and some cities classified as losers. For those communities that are classified as losers (problematic), the study examines the demographic characteristic. The purpose of the study is to be used for further development in policy for core urban cities.

Presentation: 2015 Midwest Political Science Association
### Graduate & Professional Student Research Forum

**Social Science**

**Platform Session E**

**UNLV Student Union Room 218**

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<th>Time</th>
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<td>8:45 – 9:00am</td>
<td>Kelly Stout, Department of Criminal Justice</td>
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<td>9:00 – 9:15am</td>
<td>Tyler Schafer, Department of Sociology</td>
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<td>Nicholas Baxter and Christopher Conner,</td>
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<td>Moritz Rissman, Department of Political</td>
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<td>Lauren Galloway, Department of Sociology</td>
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<td>Rachel Macfarlane, Department of Sociology</td>
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<td>10:45 – 11:00am</td>
<td>Qingting Hu, Department of Criminal Justice</td>
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<td>11:00 – 11:15am</td>
<td>Denise Cook, Department of Sociology</td>
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<td>Rafael Oganesyan, Department of Political</td>
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Police Responses to Domestic Violence and Public Perception  
Kelly Stout and M. Alexis Kennedy, Department of Criminal Justice

Domestic violence, also known as, intimate partner violence (IPV), has become an epidemic in the United States. According to the Center for Disease Control and prevention (CDC), about 24 women and men are victimized by an intimate partner each minute, equaling about 12 million victims every year (2012b).

In recent years, the public has become more aware of IPV situations. An increase in public service announcements has helped to inform the public and has brought these dangerous situations out from behind closed doors. In the age of technology, information is more easily distributed and exchanged which has also increased public awareness.

Police departments have also become more diligent about addressing IPV in homes. The implementation and use of lethality assessments in police departments around the country has led to more efficient police responses and increased the number of victims identified to be in lethal relationships (Campbell, 1995).

This research is intended to explore public knowledge about IPV and examine the public’s support for new police policies directing officer responses to IPV calls for service. Furthermore, this paper will seek to connect the relationship between public awareness and support of police actions.

Presentation: American Society of Criminal Justice, November 21, 2014, San Fransisco, CA
Miracle in the Mojave: Miracle in the Mojave: Everyday Religion and the Sacralization of Urban Space
Tyler Schafer, Department of Sociology

In this paper I show how cultural orientations can influence practical considerations in grassroots organizations. I focus on the ways in which individuals infuse spirituality into quotidian, embodied practices at a Las Vegas community garden. The incorporation of religious or spiritual objects and practices in everyday settings helps individuals experience their religious worlds as real and accessible. Lived, embodied religion is not simply a matter of translating insights from religious authorities to one’s daily existence, but also, inversely, of framing everyday, embodied practices as spiritual. Based on data I collected over the course of 4 years of participant observation and 20 in-depth interviews, I illuminate ways in which spirituality aids in the persistence of a community garden. I also illustrate how groups create place-based myths that exercise influence over the character of the place, and in this case how perceptions that the garden is “God-powered” have led to an overreliance on supernatural causes of progress and prevented investment in infrastructure and outreach. This research sheds light on the importance of place in shaping the character of grassroots organizations. It also builds on existing knowledge of embodied spiritual practices in everyday life.

Presentation pending: Pacific Sociological Association in Long Beach, CA, April 4, 2015
In this paper, we utilize our experiences as researchers on a short-term ethnographic project to address the development of short-term ethnography as a viable research method. The project was a grant funded and interdisciplinary research project aimed at using ethnographic methods to analyze issues of health, public transportation, and community in neighborhoods throughout the Las Vegas Metropolitan area. The ethnographic data was collected by a group of a dozen graduate researchers, including two of us, over roughly a ten week time period. This project provides a splendid example of a developing trend toward short-term ethnographic projects, particularly among institutional, governmental, and grant funded organizations. As such, we utilize this project and our experience to analyze short-term ethnographic methods. Specifically, we argue that while short-term ethnographic methods may provide some potential benefits it also possesses several methodological limitations. These limitations result from paradigmatic, epistemological, and political issues which arise from attempts to condense and short cut the rigors of traditional ethnographic methods. These limitations not only raise significant methodological concerns but if not dealt with have the potential to undermine the vary characteristics that make ethnography a powerful research method.

Presentation: Society for the Study of Symbolic Interaction Annual Conference, San Francisco CA, August 2014
Multilateral Development Banks and Economic Growth
Moritz P. Rissmann, Department of Political Science

Vreeland (2003) produced the novel finding that contrary to popular believe and research, countries participating in programs with the International Monetary Fund (IMF) do not show increased economic growth in the following years. The purpose of this study is to examine whether Vreeland's results hold (a) when more years are included, i.e. when the data set is extended beyond the year 2000, and (b) for other multilateral development banks (MLDB). The research question is thus, do MLDBs produce economic development in the respective aid-receiving countries? Methodologically, I first start by applying the approach of Vreeland (2003) to my data set. However, I see potential problems due to unobserved, heterogeneous, time-invariant as well as time-variant cross-sectional correlation. I propose using a common-factor error model. Also, public attention forced the IMF and World Bank to restructure their loan operations and include sustainability measures in the 1990s. If these measures improved international lending we would find a positive relationship after 1999. The results underline the robustness of Vreeland’s findings for the IMF while showing some evidence that other MLDBs actually cause growth. Finally, the 1990s only led to improvements in MLDBs that already had a positive impact on economic growth.
Love, Marriage, and Movies
Lauren Galloway and Erika Engstom, Department of Sociology

Despite divorce statistics and widely held truisms regarding the rate of divorce, relatively stable marriage and remarriage rates, in conjunction with the pro-marriage ideology that permeates Western culture, speak to the potency of beliefs in true love and, quite possibly, the desire to make expectations a reality (Byrne & Carr, 2005; Felberg & Kohen, 1976). Scholars in a range of academic disciplines have cited unrealistic expectations of sex, love, and romance as influential forces on satisfaction in romantic relationships. Often referred to as unreasonable (Baucom & Epstein, 1990), dysfunctional (Eidelson & Epstein, 1982), irrational (Epstein & Eidelson, 1981) or idealized (Segrin & Nabi, 1992), unrealistic expectations regarding relationships comprise myth endorsement and fantastic beliefs, attitudes, and behaviors about a range of romance-related subjects from courtship rituals to sexual encounters (Galician, 2004). The current study examines the association between consumption of media messages by way of movie viewing and genre preference and endorsement of ideals and expectations concerning romantic relationships. A survey of young adults found that viewing preference for both romantic comedies and dramas was significantly and positively correlated with idealized notions of faith that love conquers all, greater expectations for intimacy and endorsement of the eros love style. However, participants who frequently watched romantic movies did not endorse beliefs in sexual perfection, mindreading, or disagreement disallowance. Results suggest that more mythic romantic ideals may tend to supersede other relational demands.

Family Formation, Care and Financial Support and Gender Ideology of Fatherhood, 
from a Life Course Perspective 
Rachel Macfarlane, Department of Sociology

Studies of gender ideology and the gendered division of labor have been at the center of work/family studies for long time. Recent changes in the economy and in the family have shifted the landscape of gendered behaviors and expectations of parental involvement, with women working much more and modest increases in fathers’ caring and domestic contributions. Strides in the gender revolution have been stalled since the 1990s, but younger generations and a modern economy demand more egalitarian relationships (Gerson 2002). Drawing on Life Course theory and methods I explore the conditions under which gender ideology and experiences of care shape one another to predict father involvement in direct care and financial support, and family formation among unmarried parents. I plan to analyze longitudinal data from the Fragile Families and Child Well Being Study which focuses on families in which parents are not married at the time of the birth of a child, giving particular insight to a variety of family formations, including some of the most vulnerable. Based on prior research, I expect to find a reciprocal relationship between involvement and ideology, with variations based on race, class, gender, employment and family formation (Zuo 2004, Vespa 2009), and despite recent shifts, still anticipate finding evidence of structural constraints that inhibit egalitarian family arrangements.

Presentation: Sociologists for Women in Society, February 21, 2015
Victim Offender Reconciliation Program in China
Qingting Hu, Hong Lu and Lei Ma, Department of Criminal Justice

China is undergoing rapid economic development and socio-economic transition in the past three decades. As Non-incarcerating punishments and sanctions can be equally effective or more effective, and also can be less costly for many non-violent offenders, Victim Offender Reconciliation has been practiced in many countries.

The current study examines the nature and extent of Victim Offender Reconciliation mechanism in current China, and to explore its benefits and challenges. Victim Offender Reconciliation has been adopted by the 2012 Criminal Procedure Law. This represents the first comprehensive establishment in China’s Procedure Law of a criminal reconciliation system with Chinese characteristics. In mainland China, criminal reconciliation is the product of a spontaneous movement within the criminal justice system, including the police department. It was initially applied in cases of assault with minor injury. There are many practical benefits of Victim Offender Reconciliation, including improve judicial efficiency and cost-effectiveness, protected victim’s interests, and improved reentry rate and reintegration without being exposed to other more serious offenders while incarcerated. It also helps to resolve social problems and interpersonal disputes. The study also analyzes the differences between Victim Offender Reconciliation in China and plea-bargains in the U.S. Finally, it explores the challenges in implementing Victim Offender Reconciliation.

Presentation: The American Society of Criminology Annual Conference, San Francisco, CA, November 19, 2014
Cultural Life of the Living Dead  
Denise Cook, Department of Sociology

Zombies have become an explosive cultural phenomena which producers, retailers, and governmental agencies utilize to target consumers. The zombie myth pervades cultural narratives because it helps people distance themselves from criticizing actual social problems yet at the same time the zombie analogy can help to highlight potential social problems. Consumption culture is one of the primary zombie analogies, though others include; xenophobic interactions with people who do not resemble us, unquestioning acceptance of potentially harmful governmental policies like the Patriot Act; a lack of disaster preparedness; mindless attention to technologies like cell phones and ultimately a loss of what makes us human. Zombies represent soulless creatures that were formerly human. If the soul is what makes us human, zombie life is a separation from our humanity. There is a risk that we may become like the zombie if we advance towards what many people fear is our future. If society follows the trajectory conceptualized by many and illustrated in zombie fiction, we become human beings who are so disconnected from others due to consumption, technologically based stimuli or governmental regulation; our humanity will cease to exist. Zombies have been around and will probably continue to be around for quite some time because zombies defy death, one of our challenges is to avoid becoming like the zombie and retain our connection to humanity.

Presentation: American Sociological Association Annual Meeting, 2014
Economic Perceptions and Presidential Trust in the Caucasus
Rafael Oganesyan, Department of Political Sciences

Economic voting theory posits that individuals hold the incumbent responsible for stewardship of the economy. A plethora of empirical works have demonstrated the relationship throughout the advanced industrial world. Recently, scholarship has shifted its focus to the application of economic voting in the developing world. Unfortunately, scholarly attention has overlooked the Caucasus region all together. Relying on pooled waves of the Caucasus Barometer dataset, I analyze the relationship between economic perceptions and trust in the president within Armenia, Azerbaijan, and Georgia. Cross-national results suggest that individuals in the Caucasus do take the economy into consideration when evaluating the incumbent. Specifically, individuals demonstrated prospective, egotropic perceptions. In other words, as one’s pocketbook widens, financially, they are more likely to place trust in the incumbent president.

Presentation: Midwest Political Science Association Conference in Chicago, IL, April 17, 2015
A Candidate by Any Other Name: Investigating the Use of Nicknames as Heuristics
Kate Eugenis and Jonathan Bradley, Department of Political Sciences

Name recognition is crucial to winning elections in representative institutions: But what is in a name? While most keep their birth names, some chose to self-identify through a modification of their original name or a nickname. This decision influences the perceptions of others, with Barry/Barack Obama serving as an example. In the case of politicians, does the use of a nickname imply certain characteristics about the candidate to voters? Are there certain voters and districts that are more likely to elect those with a shorter, informal name regardless of party affiliation? We believe there are measurable patterns in how candidates chose to self-identify that are linked to the political ideology, region, and urbanization of their constituencies. We also believe these patterns will hold consistent in both the United States and Canada. Linguistic theory and political science are rarely combined, particularly when using data from legislative and gubernatorial elections, but we believe the commingling of these two disciplines will produce unique conclusions regarding voter heuristics and political psychology. This study also adds to work concerning the strategic behavior of legislators seeking election with implications for the ways future politicians will self-identify to certain constituencies.

Graduate & Professional Student Research Forum  
*Social Science*  
Platform Session F  
UNLV Student Union Room 219 

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<tr>
<th>Time</th>
<th>Speaker</th>
<th>Department</th>
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<tr>
<td>8:30 – 8:45am</td>
<td>Nathan Henceroth</td>
<td>Department of Political Science</td>
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<td>8:45 – 9:00am</td>
<td>Allison Sahl</td>
<td>Department of Sociology</td>
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<td>9:00 – 9:15am</td>
<td>Mari Sakiyama</td>
<td>Department of Criminal Justice</td>
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<td>9:15 – 9:30am</td>
<td>Christina Parreira</td>
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<td>Erika Masaki</td>
<td>Department of Political Science</td>
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<td>9:45 – 10:00am</td>
<td>Andrea Dassopoulos</td>
<td>Department of Sociology</td>
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<td>10:30 – 10:45am</td>
<td>Breanna Boppre</td>
<td>Department of Criminal Justice</td>
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<td>10:45 – 11:00am</td>
<td>Jennifer Whitmer</td>
<td>Department of Sociology</td>
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<td>11:00 – 11:15am</td>
<td>Haftor Erlingsson</td>
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<td>11:15 – 11:30am</td>
<td>Michael Trevathan</td>
<td>Department of Political Science</td>
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Do EU Structural Funds Have an Effect on French EP Elections?
Nathan Henceroth, Department of Political Science

Are parties affected by EU structural spending? It is hypothesized that pro-EU parties will receive electoral benefits from regions receiving more EU structural funds, while anti-EU parties will not receive any electoral benefits related to higher per capita EU structural fund disbursements. While parties will seek to steer EU money in their national direction (Kemmerling and Bodenstein 2006), nothing in the literature examines how parties are affected by increased per capita EU structural spending. Moreover, we hypothesize that the vote share for left parties will be most sensitive to EU structural spending. The literature supports the case that there are differences between the left and the right (Anderson and Hecht 2012; Dassonneville and Lewis-Beck 2013), and this study seeks to demonstrate that this is the case with EU structural spending at the French regional level. To test our hypothesis, we have preliminary results from the 2014 EP elections indicating that Parti Socialiste (PS) vote share is positively affected by higher levels of per capita EU structural fund disbursements. There is currently very little research concerning voter preference and EU structural spending, and we seek to remedy this unexplored phenomenon.

Presentation pending: Midwest Political Science Association, Annual Conference, Chicago IL, April 16-19 2015
Housework and Employment: Trends Before, During, and After the 2007 U.S. Economic Recession
Allison Sahl, Department of Sociology

As part of a larger, ongoing project, the goal of this research is to examine gender differences in time spent on core housework tasks before, during, and after the 2007 U.S. economic recession. Previous research suggests that women perform more housework than men. Explanations for these differences fall under three major perspectives: relative resources, time availability, and gender theories. According to the relative resource perspective, the partner contributing the most resources (i.e., money) can bargain out of domestic tasks. The time availability perspective suggests that the partner that performs the most unpaid household labor is the partner with the most time available for these tasks. The third major perspective suggests that men and women are socialized into different roles; males are socialized as paid market contributors, while females are socialized as domestic contributors. Research has found mixed support for these perspectives. Using The American Time Use Survey, which is sponsored by The Bureau of Labor Statistics and conducted through the U.S. Census Bureau, I hope to test these perspectives; specifically time availability. This study provides a unique opportunity to analyze contributions during a time of major economic disruption, the 2007 economic recession, as during this time more unemployment was experienced. Despite employment status differences, findings suggest women still perform more core housework tasks across all time periods.

Presentation: American Sociological Association, August 2014
**Big Hover or Big Brother? Public Attitudes on Using Drone Technology for Visual Surveillance Activities**  
Mari Sakiyama, Joel D. Lieberman and Terry Miethe, Department of Criminal Justice

This paper presents results from a national survey that was administered to measure public perceptions about drone technology and its domestic use. Specifically, the authors examined the level of public tolerance for drone usage by law enforcement agencies and the level of confidence in those agencies, as well as in the security of data gathered by drones. These public attitudes toward visual surveillance technology are assessed in a variety of private and public contexts. The implications of our findings for public policy and law enforcement practices are discussed.

The current study extends this line of research and explores the public perceptions about drone technology within the U.S. context. The national survey will be administered using the Amazon Mechanical Turk (MTurk) to measure different levels of public attitudes. The investigators are currently in a process of creating items for the survey questionnaires. The findings will be presented as a paper presentation at the annual meeting of the American Society of Criminology (the acceptance result is not going to be notified to the PI until the May 31st). I will be responsible for the item creating, coding, and data analyzing in addition to creating and presenting the presentation for this academic conference.

Given the necessity of public acceptance for any effective public police, it is important to collect comprehensive data on public attitudes about various aspects of technology, concerns with its application in both public and private domains, and its general acceptance within specific types of public/private contexts.

Presentation: American Society of Criminology, November 18-21, 2014
“Our Bedrooms Are Our Stage”: Selling Sex and Intimacy in a Nevada Brothel  
Christina Parreira, Department of Sociology

This article draws upon, and contributes to, the scholarship on commercial sex and sociology of the body by examining how 12 prostitutes in a licensed Nevada brothel discuss aspects of their work. Until recent years, debates on the body and labor of the prostitute have been largely theoretical. However, a growing number of scholars have begun examining how sex workers discuss their work bodies (Price, 2010; Brents & Jackson, 2013).

My data is the result of an eight month qualitative study over the course of 6 trips to a legal brothel in Amargosa Valley, Nevada. I spent 36 days total living and working as a prostitute in the brothel. I obtained approval from the University of Nevada, Las Vegas’ Institutional Review Board to conduct interviews and observations. I examine how prostitutes perform body labor, conceptualize the body as a resource, and cope with the physical and mental demands of sex work.

In my sample, I found that the workers who practice holistically and are less influenced by Western mind/body dualism are more likely to achieve orgasm with clients. Workers who do not orgasm are more likely to report mental boundaries and disconnects between mind and body. However, this division seemed to break on age; the majority of workers who are able to achieve orgasm are over age 40. Additionally, those who practice holistically generally had higher socioeconomic statuses. Implications of stigma, shame, and the concept of “dirty work” and “spoiled identity” (Hughes, 1958; Goffman, 1963; Ashforth & Kreiner, 1999) are discussed in relation to age, socioeconomic status, and work enjoyment.

Presentations: SSSP (Society for the Study of Social Problems) Conference, August 2014  
International Human Trafficking, Prostitution, and Sex Work Conference, September 2014
Southeast Asia’s Environmental Policy: Perceptions and Realities
Erika Masaki, Political Science

Within the studies of Southeast Asian regionalism, particularly in the discussions about the Association of Southeast Asian Nations (ASEAN) and the “ASEAN Way,” scholars often tend to overlook the role of the environment in such an institutional arrangement. The focus of regional cooperation in Southeast Asia has predominantly been on economic and security concerns that have led to many agreements and treaties. Consequently, the limited research on regional environmental cooperation in Southeast Asia often notes that while economic and political ties have deepened within the region, environmental cooperation has been substantially deficient and lagging.

However, few scholars have truly investigated the empirical evidence for these claims. Consequently, this paper uses a mixed-methods approach to evaluate Southeast Asia’s participation in regional environmental regimes and agreements. Examining ASEAN’s response to biodiversity concerns in the region, it compares Southeast Asia’s political environmental responses to those of other regions and the world. The counterintuitive findings may suggest that despite Southeast Asia’s bad reputation for a lack of environmental concern, the region has not only made significant progress in the areas of environmental cooperation and integration, but also, despite the particularly difficult challenges that the region faces, Southeast Asia is working toward a more integrated environmental region.

Presentation: ISA-West September 26-27, 2014
Whose Community? Gentrification and Media Representation in Downtown Las Vegas
Andrea Dassopoulos, Department of Sociology

This paper explores the role that local media has played in framing the redevelopment of downtown Las Vegas since 2008. Downtown Las Vegas is in the midst of rapid development and gentrification, spearheaded by investment groups City of Las Vegas Redevelopment Agency and the Downtown Project (DTP). Investment in the area has changed the landscape of downtown Las Vegas, particularly the Fremont East area, which has long had a reputation for high crime and poverty. Numerous weekly motels, small markets, and casinos geared toward locals have been closed and replaced with businesses geared toward a burgeoning creative class. The vision of DTP is to build a dense area of entertainment, art, and co-working spaces. DTP’s public image is cultivated using buzzwords like “community” and “collisions” DTP has changed both the physical and cultural character of the area. Using “community” to describe the changes proliferates in alternative weekly magazines and blogs as a way to frame the changes and define the area. Throughout the process, development has been positively framed as making the area safer and bringing more people downtown, with a rare voice decrying gentrification. I focus on the use of the word “community” in the rhetoric of the DTP and show how the media becomes a booster for DTP by drawing on existing perceptions of Las Vegas as a transient city lacking community cohesion. Community, however, is not an inclusive term, as the existing and longstanding community of Fremont east is noticeably absent from the public discourse.

Probation and Parole Officer Attitudes toward Evidence-Based Practices: Application and Modification of the Evidence-Based Practices Attitudes Scale (EBPAS)
Breanna Boppre, Department of Criminal Justice

The research and literature referred to as “evidence-based practice” (EBP) holds tremendous potential for improving the outcomes of community corrections. The implementation of EBP requires support from staff at all levels of an organization. However, correctional officers’ attitudes toward organizational change and EBPs have not been well studied. The current study applies the Evidence-Based Practice Attitude Scale (EBPAS), as developed by Aarons (2004), to measure community corrections officers’ readiness toward the use and implementation of evidence-based practices. Officers’ attitudes were also examined in relation to a set of individual differences and organizational characteristics. The current study modified the EBPAS to measure officers’ attitudes toward the use of science in community corrections, as well.
Keywords: evidence-based practices, dissemination, attitudes, probation and parole, community supervision, organizational behavior.

Presentation: The American Society of Criminology, San Francisco, CA, 2014
Producing Authenticity: Personal Style Bloggers, Branding, and Cultural Intermediaries
Jennifer Whitmer, Department of Sociology

This paper contributes to theoretical reexaminations of Bourdieu’s concept of cultural intermediaries by locating the production and consumption of symbolic value within the context of brand culture. Drawing on interviews, qualitative content analysis, and participant observation, I explore the role of personal style bloggers as cultural intermediaries, and the impact of this role on bloggers’ processes of self-presentation. I use Cronin’s (2004) conceptualization of multiple regimes of mediation to explore the multidirectional interplay between blogger, audience, and corporate sponsors in the production and consumption of symbolic value. Personal style bloggers brand themselves by showcasing their own personal taste and style for an audience of unknown others. As fashion outsiders, personal style bloggers largely lack institutional legitimacy, but rather claim legitimacy through displays of “natural” taste, style, and personality, which the audience perceives as authentic to the blogger. When brands collaborate with bloggers, they are trying to tap into bloggers’ lifestyle, readership, and claims to authenticity, while the bloggers themselves are trying to construct an image of living a fashionable lifestyle. However, for bloggers to successfully create value, they must first resonate with audience expectations regarding bloggers’ authentic presentation of self, which may not align with bloggers’ subjective feeling of being true to self.

Presentation: American Sociological Association
Expatriate Voting Rights in Latin America and the Caribbean: The Influence of Remittances, Globalization, and Partisan Control
Haftor Erlingsson and John Tuman, Department of Political Science

This paper seeks to explain the decision of governments in Latin American and the Caribbean to grant expatriates voting rights in their country-of-origin. Focusing on 27 Latin American and Caribbean countries for the period of 1980 to 2012, the study investigates the effects of remittances, globalization, left party control of the executive branch, and several other controls on the likelihood that governments will grant voting rights for expatriates. The statistical models are estimated with Cox proportional hazard regression. The results add to the literature on migration by demonstrating that remittance flows have an effect on the likelihood of governments adopting expatriate voting rights, although the influence of remittances is non-linear. Partisan control is also shown to be important, although the level of wealth, globalization, and other controls were not found to be significant.

In the post-Cold War era ethnic civil wars and conflicts have become the most prominent forms of violent conflict in the world (Wimmer 2004, 1). Previous studies have focused on how material factors, natural resources, socially-constructed identities, and primordial cleavages have shaped conflict between ethnic groups. One intriguing area of study in this field is the role played by natural resources, such as oil, in the development and duration of ethnic civil wars. As alluring as this area of study is, the literature remains somewhat ambivalent about the role that the natural resource of water plays in the onset of ethnic civil wars. This paper is an exploratory endeavor designed to create a theoretical framework that empirically tests the impact of water scarcity as a cause for the onset of ethnic civil wars.

Presentation: International Studies Association Annual Conference 2015
Graduate & Professional Student Research Forum

*Education*

Platform Session A

UNLV Student Union Room 222

8:30 – 8:45am  Elif Adibelli and Refika Turgut, Department of Teaching & Learning

8:45 – 9:00am  Amy Beth Adkins, Department of Teaching & Learning

9:00 – 9:15am  Brittnie Watkins, Department of Educational Psychology & Higher Education

9:15 – 9:30am  Laura Decker, Department of Teaching & Learning

9:30 – 9:45am  Alexandra Dema, Department of Teaching & Learning

9:45 – 10:00am Samantha Riggleman, Department of Educational & Clinical Studies

10:00 – 10:15am  Break

10:15 – 10:30am  Lina DeVaul, Department of Teaching & Learning

10:30 – 10:45am  Mehmet Dulger, Department of Teaching & Learning

10:45 – 11:00am  Caitlin Saladino, Department of Educational Psychology & Higher Education

11:00 – 11:15am  Christina Santoyo, Department of Teaching & Learning

11:15 – 11:30am  Bob Walker, Department of Teaching & Learning
Factors for Changing Preservice Teachers’ (PSTs) Knowledge, Attitudes, and Beliefs regarding Second Language Acquisition (SLA) and English Language Learners (ELLs)
Elif Adibelli and Refika Turgut, Department of Teaching & Learning

This mixed-method study aimed to investigate the following research questions:

(1) How did the preservice teachers’ (PSTs) change their knowledge, beliefs, and attitudes regarding second language acquisition (SLA) and working with English Language Learners (ELLs) as a result of participation in a semester-long SLA course?

(2) Which factors did PSTs perceived most influential in improving their knowledge, beliefs, and attitudes regarding SLA and working with ELLs?

A total of 36 PSTs who enrolled in the Teaching English as a Second Language (TESL) course participated in the study. Data collected from pre- and post-course surveys, reflective journals, and course evaluations were analyzed using a mixed-methods sequential explanatory design (Creswell, Plano Clark, Gutmann, & Hanson, 2003). First, data from pre-post surveys were analyzed using two Wilcoxon Signed Ranks tests (nonparametric equivalent of a paired sample t-test) to measure quantitative changes in PSTs’ attitudes towards, and knowledge and beliefs about ELLs. Second, qualitative data analysis helped explain, or elaborate on, the obtained quantitative results. Quantitative findings revealed significant changes in PSTs’ knowledge, attitudes and beliefs regarding ELLs and SLA. Qualitative findings revealed the impacts of teacher characteristics (the course instructor’s being a nonnative speaker of the English language) and the five instructional activities (mini-lessons in foreign languages, case-studies, group discussions on myths about ELLs and SLA, interviewing an ELL student, and awareness-raising readings and videos) on PSTs’ knowledge, attitudes and/or beliefs.

Lessons Learned about Preschool Children’s Use of iPads
Amy Adkins, Department of Teaching and Learning

In this presentation, lessons learned about the implementation of iPads in a preschool setting will be shared. Early childhood mathematics apps will be discussed, as well as the different ways to integrate iPads to maximize learning. The iPad apps provided the context for the math content which included subtilizing, ordering, counting, identifying numbers, comparing, and place value.

There are limited empirically based guidelines about the implementation of technology for effective learning. This study provides insight about the use of iPads in an early childhood mathematics setting.

The goal of the present study is to test a research-based number sense curriculum on a population of low-income preschoolers to improve their number sense knowledge. One-hundred preschoolers from a large Head Start center in Nevada were either randomly assigned to Math Shelf, or best reviewed preschool math apps.

The design used quantitative and qualitative research methods. Students took a pre and post test to measure growth in number sense. Interviews with teachers, field notes, and observations provided details about best execution and challenges. Children in both groups played three days a week, for six weeks, in 10 minute sessions.

Results showed that iPads should be implemented in a quiet place with an appropriately cognitive demanding app to help maximize learning. Both groups showed improvement in number sense. However, children who used Math Shelf produced six months more number sense learning than children who played the most popular apps.

Presentations: Association of Mathematics Teacher Educators Nineteenth Annual Conference, Orlando FL, February 2015
Reducing Court-Related Stress through Court Education: Examining Child Witnesses, Parents and Attorneys
Brittnie Watkins, Department of Educational Psychology and Higher Education

Child witness research first became highly prominent in the 1980s, when reports of child abuse rose substantially, requiring children to give evidence more often. Although children are testifying more often, many children associate testimony with fear or anxiety and are re-traumatized by court experiences. Children’s fear of the courtroom can contribute to negative consequences for memory outcomes. Moreover, juries, attorneys and parents often doubt whether children have the ability to testify accurately.

Court education presents a useful approach to addressing child witness anxiety, in hopes of promoting accurate memory recall during testimony. The current study uses a pretest-posttest design to evaluate whether Kids’ Court School (KCS), a curriculum-based, court education program, reduces court-related stress in child witnesses in Clark County, Nevada. In addition, attorneys and parents perceptions of the child witnesses’ stress are evaluated.

Presentation: American Psychological Association, August 11, 2014
Teaching Positive Images of Disability in Native American Young Adult Literature
Laura Decker, Department of Teaching and Learning

The field of disability studies, including disability literature, has expanded as educators seek to improve their students’ critical thinking and reading skills, as well as to introduce issues of disability. Leonard Davis’ “Constructing Normalcy,” David T. Mitchell and Sharon L. Snyder’s notion of the disability metaphor narrative and Rosemarie Garland-Thomson’s politics of staring all serve as important theoretical frameworks for educators to use in teaching images of disability in literature.

However, when teaching Native American literature in primary and secondary classrooms, the dominant paradigm even insofar as it applies to and defines disability can itself be disabling to native authors and narratives. Siobhan Senier and Clare Barker recently called for a decolonization of disability literature: “to commit to a form of disability studies praxis that refuses to impose non-indigenous frameworks of health or disability upon native communities, whether these might be medical or more progressive social models.” Some work has been done previously on images of disability within native contexts; however, most of this work has been focused on adult literature.

In this paper I look at Native American young adult literature by applying indigenous frameworks of health and disability, as well as to catalog the positive images of characters with disabilities that are so important to promote in K-12 classrooms. I use Michael Dorris' "Sees Behind Trees," Jacqueline Guest’s "Triple Threat," and Louise Erdrich's "The Round House," and I include classroom strategies for teachers.

Presentation: Native American Literature Symposium, March 2015
The Impact of Sociocultural Practices on International Graduate Students’ Teacher Identity Development
Alexandra Dema, Refika Turgut and Shaoan Zhang, Department of Teaching & Learning

Identity issues play an essential role in the adaptation and development of international graduate assistants (IGAs). This multiple-case study examined the perspectives of four IGAs in a U.S. institution regarding the impact of sociocultural practices, in which they engage, on their teacher identity development and how these practices affect their teaching and positioning in the classroom. In order to explore professional identity development, we drew on sociocultural theory perspectives. The data collection tools included one-on-one interviews, demographic data sheets, surveys, and follow-up emails. The data were collected in summer and fall of 2013. The findings indicated that IGAs’ teacher identities developed over time and were affected by their linguistic, educational, and cultural backgrounds as well as teaching experiences. The data also revealed that the participants’ teacher identities were shaped as a result of engaging in the following three types of sociocultural practices: performing professional duties in the classes that they taught; participation in professional communities (mentor-student dyads; coursework; and communities of peers); and engaging in informal practices involving family and friends and extracurricular activities with students. Since this is an underexplored topic, this research contributes to the fields of teacher education and TESOL by raising awareness of IGs as important members of educational communities in the U.S. academia. The study also helps start a discussion between IGs and university administrators and faculty on IGs’ specific needs and challenges as educators and ways to provide better opportunities and support to such individuals in order to improve the quality of their teaching.

Presentation: Association of Teacher Educators (ATE), Niagara Falls, NY, August 1 – 5, 2014
Facilitating Inclusion of Diverse Students with EBD through Cooperation Games
Samantha Riggleman and Teri Marx, Department of Educational and Clinical Studies

We will teach practitioners how to facilitate peer-mediated cooperation games in the classroom setting to promote the inclusion of culturally and linguistically diverse learners with emotional/behavioral disorders. The results of a recent investigation into the use of cooperation games with this population will also be presented.

Presentation: CEC (Council for Exceptional Children) April 10, 2015
Lessons Learned about Preschool Children's Use of iPads
Lina DeVaul, Department of Teaching and Learning

This presentation will share with attendees an in-depth look at HeadStart students learning number sense concepts on the iPad with games-based apps. Preschool number sense predicts math and academic achievement through age 15 better than any other readiness assessment. Meanwhile, low-income preschoolers are 1-2 years behind their middle- and high-income peers in number sense when they enter Kindergarten. This study filled in the research gap in improving low-income family kids' number sense by using iPad interactive game. 100 students in one HeadStart in Henderson participated in this study. Students were randomly assigned into treatment group and comparison group evenly. Treatment group used researcher designed iPad math APP. Comparison group used three popular math APPs in the market. The study was six weeks long. Student played APPs 3 days per week. The session was 10-minutes each day. Pretest/posttest number sense assessment and t-test were applied to evaluate students’ improvement. It was found that this researcher designed math APP improved students’ performance in number sense. Challenges and lessons learned during this study will be shared in the presentation.

Presentation: 2015 Annual AMTE Conference---The Nineteenth Annual Conference of the Association of Mathematics Teacher Educators (AMTE), February 12, 2015
Assessing Validity of Multiple Choice Questions in Measuring Fourth Graders Ability to Interpret Graphs about Motion and Temperature
Mehmet Dulger and Hasan Deniz, Department of Teaching and Learning

The purpose of this paper was to assess the validity of multiple-choice questions in measuring fourth graders’ ability to interpret graphs about motion and temperature. We administered 6 multiple-choice questions about motion and temperature to 28 fourth grade students after they learned about motion and temperature graphs. We also interviewed all 28 students and asked them to explain their answers. We found that students can make correct explanations for a question even if they answer the question incorrectly. Similarly, we found that students may not make correct explanations for a question even if they selected the correct choice for that question.

Presentation: Association for Science Teacher Education, Portland, OR, January 8, 2015
Community College Transfer in Southern Nevada: An Investigation of Policy and Outcomes
Caitlin Saladino, Department of Educational Psychology & Higher Education

The number of college students that begin their post-secondary careers at community colleges is at an all-time high (Gard, Paton, & Gosselin, 2012). Therefore, it is important that transfer policies between 2- and 4-year institutions are designed to ease the transition of community college students. In Southern Nevada, The Nevada System of Higher Education (NSHE) governs a university system that includes the College of Southern Nevada (CSN), Nevada State College (NSC) and the University of Nevada, Las Vegas (UNLV). The purpose of this study is to investigate the landscape of transfer in Southern Nevada, and specifically those barriers that may hinder student transfer from CSN to UNLV. Early findings in the UNLV portrait of student data reveal that 3,405 new undergraduate transfer students were admitted to the university in fall 2013, but only 2,339 actually enrolled. In other words, the transfer mechanism in Southern Nevada left 1,066 students unaccounted for. This project focuses on the stated transfer policies that are currently implemented through the NSHE bylaws. By observing these policies from a policy analyst perspective, researchers can begin to understand why transfer barriers exist in Southern Nevada. My analysis reveals misalignment of policy goals because the policies target the problem at the institutional level, rather than the student level. I conclude by offering suggestions for improvement to the NSHE transfer policies; ultimately, transfer policies must be crafted with students in mind, to account for the unique barriers they face as they navigate the systemic bureaucracy of two or more institutions.
A Case Study of Social Justice Education in a General Methods Course
Christina Santoyo, Shaoan Zhang and Danny Murphy, Department of Teaching & Learning

The current diversity in American schools requires integration of social justice perspectives into teacher preparation. This case study of four teacher candidates reviews the use of social justice in a secondary education methods course that is taught concurrently with the teacher candidates’ practicum field experience. The goals of this research are to determine to what extent teacher candidates develop social justice dispositions and knowledge through enrollment in a methods course and what opportunities teacher candidates have for developing a cultural teacher identity within a school-based setting. Viewed through the conceptual lens of social identity development theory and the teacher education (InTASC) standards’ required dispositions and knowledge of social justice, several themes and subthemes were identified. Theme one, dispositions about social justice integration, examined teacher candidates’ dispositions for understanding diversity and their exploration of students’ diverse strengths and needs. Theme two, knowledge of social justice integration, examined special education students’ needs in lesson planning and the teacher candidates’ ability to address the needs and strengths of culturally diverse students. Theme three, learning opportunities in the field experience, examined how teacher candidates learn to teach student-centered lessons that integrate social justice. The findings suggest that teacher candidates develop social justice teacher identities in the university-based setting, but because of a lack of support from mentor teachers in the school-based setting, they do not develop identities as social justice teachers.

Presentation: Hawaii International Conference on Education, January 5-8, 2015
Black Male Education and Employment Opportunities
Bob Walker, Department of Teaching and Learning

The purpose of this study is to determine the current status of education's role in African American males' employment opportunities. For more than fifty years, the trajectory of African American male education and employment has been a negative one. This study will attempt to document, in their own voice, African American male lived experiences in an effort to understand their perspectives on education and job opportunities at various education levels.

This study will help fill that gap in the literature by interviewing Black males from six levels of education: high school dropout, high school graduate, community college graduate, college graduate – bachelors’ degree, Master’s degree graduate, and a doctoral graduate.

The goal is to answer the primary research question. Does educational attainment influence employment opportunities for African American males? If so, in what way(s)? The data gathered will be viewed through the theoretical frameworks of Critical Race Theory and Stereotype Threat in the context of the 1965 Moynihan Report. This is a qualitative study using the case study method interviewing at least six participants which makes it a multi-case study.

This study is in the proposal stage so there are no results or conclusions, but I do have three very interesting chapters completed which give context to the background of the problem Black males have including a brief history of Black men in America, a review of the current literature Black male problems, and the proposed methodology and timeline.
Graduate & Professional Student Research Forum  
Science and Engineering  
Poster Session A  
UNLV Student Union Ballroom  

Posters 1 – 5: Judging at 8:45 – 10:00am  
1. Amro Abdalla, Department of Chemistry  
2. Iani Batilov, Department of Civil and Environmental Engineering and Construction  
3. Courtney Bartlett, Department of Geoscience  
4. Sungchul Lee, Department of Computer Science  
5. Daniel Mast, Department of Chemistry  

10:00 – 10:15am Break

Posters 6 – 10: Judging at 10:15 – 11:30am  
6. Syeda Saria Bukhary, Department of Civil and Environmental Engineering and Construction  
7. Melisa Bishop, Department of Geoscience  
8. Samad Gharehdaghimollahajiloo, Department of Mechanical Engineering  
9. Ali Pour Yazdanpanah, Department of Electrical and Computer Engineering  
10. Robabeh Jazaei, Department of Civil and Environmental Engineering and Construction
Recent advances in stem cell research elucidate the possibility of using adult stem cells to treat some of the most severe pathological conditions such as autoimmune and neurodegenerative disorders. The overall goal of research project is to investigate the effects of receptor tyrosine kinase, Insulin like growth factor 1 receptor (IGF-1R) on neural and mesenchymal stem cell development. My research project aims to study the influences IGF-1R on stem cell proliferation and differentiation. Based on previous reports, IGF-1R plays an important role in stem cell development. IGF-1R was proposed to induce development of hippocampus dentate gyrus during postnatal and embryonic periods. Moreover IGF-1R was shown to exert a critical role in bone development through modulation of mesenchymal stem cell development. In my project we target an enzyme called acid sphingomyelinase (ASM) which is responsible for catalyzing the breakdown of sphingomyelin lipid which is a part of plasma membrane. We hypothesize that IGF-1R plays a critical role in stem growth and differentiation through modulation of sphingomyelin lipid rafts consequently affecting stem cell growth and development. During this time, I will be using both IGF-1R inhibitors and such as desipramine and lentivirus to test the effects of IGF-1R on neural and mesenchymal stem cells development. To achieve this goal, I will be using biochemical approaches such as immunoblotting and immunostaining, to further investigate IGF-1R effects on stem cell development.
2. Sulfate Resistance of Nano Silica and Micro Silica Contained Mortars
Iani Batilov, Nader Ghafoori and Meysam Najimi, Department of Civil and Environmental Engineering and Construction

High concentrations of sulfates in soils, sea water and ground water are examples of hostile environments that can deteriorate concrete and lead to costly repairs or replacement. Sulfate attack is a slow acting deteriorative phenomenon that can result in progressive failure of concrete. The scope of this research is a three phase series of tests, where mortar samples with progressive nano Silica (nS), Silica Fume (SF), and combined nS/SF cement replacement are subjected to sodium sulfate solution to observe effects of chemical and physical sulfate attack. The goals are to identify and experimentally show potential benefits of nS (an industrial waste byproduct) in concrete sulfate resistance, measure if significant improvements are observed over the more widely implemented silica fume replacement, and ultimately develop industry recommendations for beneficial nS application in high sulfate environments. Mortar bar expansion, compressive strength of cubes and cylinders, mass loss, water absorption and porosity were measured. Experimental evidence showed that both paste permeability and chemical resistance of the binder contribute to the effectiveness of a mortar to resist chemical sulfate attack. Permeability, which is dependent on porosity, binder fineness, binder dispersion, water/binder ratio, and compaction, and chemical resistance of binders, cannot easily be isolated based on regional material availability and specific sulfate conditions. When formulating a sulfate resistant mix design, either the paste permeability or the chemical resistance of the binder may dictate the controlling parameters for acceptable w/cm ratios, binders, aggregate, and admixtures used.
Courtney L. Bartlett, Elisabeth M. Hausrath and Christopher T. Adcock, Department of Geoscience

Phosphate is essential for life; it is required to stabilize RNA, DNA as well as phospholipid membranes [1]. The dominant phosphate-bearing minerals found in Martian meteorites are merrillite and chlorapatite. When phosphate-containing minerals dissolve, the phosphate contained within the mineral becomes available for use by organisms, or prebiotic reactions. Therefore, the study of how minerals release phosphate is essential for not only determining how much phosphate could be available, but what influences its release.

The presence of organic compounds may have played an important role in the reactions leading to life on Earth and/or Mars. The environments in which phosphate release would have been most relevant to potential early martian life likely did not contain solely inorganic solutions and phosphate mineral surfaces, but also likely contained abundant organic matter delivered by carbonaceous chondrites and interplanetary dust particles [2]. These organic compounds may also have played an important role in phosphate mobility in early, potentially habitable, martian environments. Results of this study will provide further understanding of the dissolution of the dominant Mars-relevant phosphate-containing minerals in the presence of organic compounds. This has important implications for the possible habitability of Mars. Understanding phosphate mobility in the presence of prebiotic organic compounds will help better interpret the potential habitability of early martian environments.


4. **Performance Testing of Web-Based Data Visualization**  
Sungchul Lee, Ju-Yeon Jo and Yoohwan Kim, Department of Computer Science

Many scientific applications generate massive data that requires visualization. For example, the Nevada Solar Energy-Water-Environmental Nexus project has been generating a large amount of environmental monitoring data in textual format. As the data is available on the web, a web-based visualization tool is desirable for the project rather than a standalone tool. This research analyzes the processing mechanisms of four popular web-based data visualization tools, that is, Google Charts, Flex, OFC, D3, and compares their performances. A standalone visualization tool, JfreeChart, have been also used for comparison. The processing times have been divided into three segments, layout time, data transformation time, and rendering time, and separately measured. The actual temperature data from the Nevada Nexus project has been used for testing in different scales ranging from 100 to 100,000 data points. The result shows that each visualization tool has its own ideal environment.

Presentation: Systems, Man and Cybernetics (SMC), 2014 IEEE International Conference, October 5 – 8, 2014
5. **Equation of State for Technetium from X-Ray Diffraction and First-Principle Calculations**
Daniel S. Mast, Eunja Kim, Emily Siska, Frederic Poineau, Kenneth R. Czerwinski, Philippe F. Weck, Barbara Lavina, and Paul M. Forster, Department of Chemistry

The study of materials under extreme conditions looks at fundamental material behaviors under the influence of external stimuli including pressure, temperature, and radiation. There are a number of elements that have not been investigated under these conditions due to unavoidable difficulties in handling the material such as high chemical reactivity or radioactivity. Technetium metal is one of the last elements to be investigated at extreme conditions of high pressure and temperature. The goal of this project is to explore the high pressure synthetic pathways for technetium compounds and characterize the pressure-dependence of the structural properties of technetium compounds. *In situ* structural measurements are made with synchrotron x-ray diffraction while in a Diamond-Anvil Cell (DAC) at elevated pressures and temperatures.

Technetium is a transition metal with similar chemical and physical properties to rhenium with the major difference that technetium has no stable isotopes, all technetium isotopes are radioactive. Developing a chemically stable waste form to contain radioactive waste is important to our nation’s energy security because we produce about 2,000 metric tons of spent fuel annually. In order to develop advanced waste forms a precise understanding of the chemical and physical properties of these materials is needed at extreme conditions. The first result from this project is an equation of state that is derived from static high pressure and high temperature data. This will create a benchmark for further technetium calculations and high pressure technetium synthesis. The structural properties of technetium metal are presented up to 67 GPa and between 100-450 K.
6. **Multi-century Annual Streamflow Reconstruction using Tree Ring Chronology and Pacific Ocean Climate Information**
Saria Bukhary, Ajay Kalra and Sajjad Ahmad Department of Civil and Environmental Engineering and Construction

Water shortage impacts due to recurring hydrologic droughts in southwestern U.S., has been exacerbated by increasing population. Better planning is a key factor for sustainability of water resources in the region, which requires the knowledge of the past hydro-climatic variability. Available instrumental streamflow records do not typically extend past the last century and may not be an adequate indicator of long-term hydrologic variability, especially the duration and intensity of past drought conditions. Hence streamflow reconstruction maybe used to extend the length of available instrumental records. Tree ring chronology (TRC), an indicator of climate, is a conventional predictor for reconstruction of streamflow. Studies have shown that the climate index of Pacific Decadal Oscillation (PDO), Southern Oscillation Index (SOI) and the Pacific Sea Surface Temperature (SST) affect the volume of streamflow in western United States. This study aims to improve the traditional reconstruction methodology using TRC, by incorporating PDO, SOI and SST as predictors, together with TRC, in a stepwise linear regression model. The proposed methodology is applied in Sacramento Basin, having a history of recurring droughts on four full naturalized flow gages with an observed period of 1906-1980. Results indicate that using SOI along with TRC provide better reconstructions (calibration r²= 0.85) compared to when using SST, PDO and TRC (calibration r²= 0.74-0.81). Reconstructions performed for years 1800-1980, may help make informed decisions regarding regional water resources and planning. For future work, this improved methodology can be applied to other basins in U.S. using appropriate climate drivers for that region.
7. Reconstructing Pacific-Atlantic Hydrologic Variability during the Medieval Climate Anomaly Using Paleorainfall $\delta^{18}O$ Records from the Tropics
Melisa Bishop, Department of Geoscience

Quaternary paleoclimate records from Central America exhibit periods of persistent drought during the Medieval Climatic Anomaly (MCA) (800-1200 CE) that may be linked to La Niña-like conditions in the eastern Pacific, a positive phase of the North Atlantic Oscillation (NAO), and changes in monsoon intensity over Central America. Effects of the MCA were expressed globally, but duration and intensity varied spatially. The few speleothem records that exist from this area demonstrate similar drying trends during this time, however, pronounced regional rainfall variability is evident. To better constrain the significance of these effects, radiometrically-dated speleothems from Panama were analyzed for their $\delta^{18}O$ composition. Acquiring additional high resolution reconstructions from this part of the world is important for understanding the geographical manifestations and oscillations between atmospheric-oceanic circulation patterns. It’s expected that isotopic signatures will show localized heterogeneity in rainfall amounts with respect to southwest Mexico, the northern Yucatan, and southern Belize. The large assemblage of paleoclimate data from this region originates from $\delta^{18}O$ values of microfossils in lake sediments and cave calcite deposits (speleothems). Lacustrine microfossils are known for their ecological diversity in that shell $\delta^{18}O$ values readily respond to changes in the precipitation/evaporation ratio, lake levels, temperature, and salinity. Although results from various locations show an overall dry MCA, resolutions are significantly lower compared to speleothems, and therefore may not capture short term drying events. Two sediment cores collected from Belize will be compared to speleothem isotope records to establish how adequately they characterize drought-like conditions during this time interval.
8. **Experimental Measurement of the Pressure Drop in the Flexible Ducting System**
Samad Gharehdaghimollahajloo and Samir Moujaes, Department of Mechanical Engineering

Flexible duct air distribution systems are used in a large percentage of residential and small commercial buildings in the United States. Very few empirical or predictive data are available through to help provide the HVAC design engineers with reliable information. Moreover, because of the ducts flexibility, the shapes of these ducts offer a different set of operating fluid flow and thermal conditions from traditional smooth metal ducts. Hence, both the flow field and heat transfer through this kind of ducts are much more complex and merit to be analyzed. The authors previously computed some of the hydrodynamic and heat transfer characteristics of the air flow inside these ducts over a range of flow rate commonly used in the flow conditions of these air distribution systems. The computational analysis showed that the pressure drop along flexible duct is much more than the amounts reported by manufacturer especially in cases where the duct is shrunk considerably. This means HVAC design engineers cannot simply rely on the manufacturers’ data when they design a flexible ducting system. To complete the previous computational research the authors conducted an experimental investigation on flexible ducts. The aim of this research paper is to experimentally measure the pressure drop along flexible ducting system in order to correlate the real pressure drop to manufacturers’ data presented on the user’s manual of the product. The results show that the pressure drop is strongly correlated to the shrinkage of flexible duct. The more shrinkage the more the pressure drop.
9. **Computed Tomography**
Ali Pour Yazdanpanah, Department Electrical and Computer of Engineering

Computed Tomography (CT) is used for medical diagnostics, non-destructive testing, airport baggage screening and also considered for cargo inspection for potential threat determination, particularly for explosives and Special Nuclear Materials (SNM). For both medical, security or industrial application of CT a limited number of views is an option for whether reducing the radiation dose or screening time, and obviously cost in all cases.

One of the main issues for image reconstruction focuses on data sufficiency and on how to estimate a tomographic image when the projection data are not theoretically sufficient for exact image reconstruction. Insufficient data problems occur quite frequently because of practical constraints due to the imaging hardware, scanning geometry, or ionizing radiation exposure. This study is dedicated to developing an advanced analytical framework to exercise both model-based and PDE based approaches and we expect to reduce artifacts and improve important image quality metrics in algebraic reconstruction of the CT with few view angles.
10. Review on Ultra High Performance Concrete
Robabeh Jazaei and Nader Ghafoori, Department of Civil and Environmental Engineering

Over the centuries, a wide variety of concretes have been developed among which the Ultra-high-performance fiber-reinforced concrete (UHPFRC) is one of the most advanced classes with the highest mechanical properties. UHPFRC has demonstrated superior strength capacity, ductility, durability, and fracture energy capacity. Moreover, improvements in the compressive strength of concrete have allowed concrete structural member size and self-weight to be significantly reduced, which has in turn resulted in cost reduction and structural aesthetic enhancement. These excellent properties are achieved through a very dense matrix that leads to a homogenized microstructure and the incorporation of a high volume content of reinforcing fibers. This poster presents the first part of the authors’ research on UHPFRC which includes a thorough review on the previous researches.

Experimental investigation and numerical analysis are two main methods that are used to predict the behavior of UHPFRC under different static and/or dynamic loading conditions. In the last few decades, several full-scale experimental researches have been conducted to study the behavior of ultra-high performance fiber reinforced concrete. However, only limited research has been devoted to use of different fibers to increase impact or blast resistance of UHPCRC for existing and susceptible structures to terrorist attacks or accidental impacts. As a result, there is now a desire to investigate the blast resistances of UHPRC with different available fibers on the market to compare which ones significantly improves UHPFRC mechanical properties such as fresh, load-dependent, time-dependent, transport and durability.
Graduate & Professional Student Research Forum

Science and Engineering

Poster Session B

UNLV Student Union Room Ballroom

Posters 11 – 15: Judging at 8:45 – 10:00am

11. Amanda Gentry, Department of Geoscience
12. Emily Siska, Department of Chemistry
13. Sichu Shrestha, Department of Civil and Environmental Engineering and Construction
14. Nudthawud Homtong, Department of Geoscience
15. Michael Steiner, Department of Geoscience

10:00 – 10:30am Break

Posters 16 – 19: Judging at 10:30 – 11:30am

16. Jason Sylva, Department of Chemistry
17. Candace Suh-Lee, Department of Computer Science
18. Kazi Tamaddun, Department of Civil and Environmental Engineering and Construction
19. Jarod Wolffis, Department of Chemistry
Amanda Gentry and Michael Wells, Department of Geoscience

Synorogenic basin development associated with emplacement of the Willard-Paris-Meade thrust sheet in northeast Utah, southeast Idaho, and southwest Wyoming during the Early Cretaceous provides unique insight into the poorly understood early deformation history of the Sevier fold-thrust belt. Timing of initiation of shortening in the Sevier fold-thrust belt bears on whether the Sevier orogen experienced a two-stage or continuous history of hinterland and foreland shortening. I propose to couple the thrust sheet exhumation history, as recently revealed by low-T thermochronology, with a sedimentologic record of coeval basin fill, to provide an integrated record of active erosional exhumation of the thrust sheet and basin deposition. Material eroded from the thrust sheet was deposited as synorogenic strata in a foreland basin. These strata contain provenance information including detrital zircon (DZ) grains containing unique age signatures related to units within the thrust sheet. Additionally, preliminary data show that wind-blown, arc-derived zircons are present in some of the basin strata that can be used to closely date deposition. As timing of deformation and sedimentation are poorly understood, it is necessary to locate DZ bearing samples from each unit within the basin, perform U-Pb age analysis, and determine an unroofing sequence and maximum depositional age. Furthermore, it is necessary to ensure that adjacent basin is synorogenic. Sedimentation rates and depositional environments will be determined. The coupled geochronologic, sedimentologic and stratigraphic analysis will provide a more complete record of the early shortening history of the Sevier fold-thrust belt and resolve the two-staged versus continuous shortening controversy.

Presentation: Geological Society of America Rocky Mountain Section Meeting, May 2013
12. **Novel Radionuclide Wasteforms Prepared Under Pressure**  
Emily Siska, Department of Chemistry

As of 2012, nuclear power makes up 5.7% of the world’s energy \(^1\) and is growing every year. The United States has an open-cycle approach which produces ~27 tons of waste/year/reactor. Currently, the most widely used waste form for nuclear waste is borosilicate glass. Although glass and ceramic waste forms have proven to be durable and sufficient at immobilizing many radionuclides; they are not ideal for certain radionuclides including I\(_2\), Kr, Tc and actinides. These nuclear waste products have long half-lives and have particularly harmful health and environmental effects. There is a need to design new waste forms that can immobilize these problematic radionuclides and reliably store them for thousands – and in some cases millions of years. Zeolites are a family of either naturally occurring or synthetic aluminosilicate minerals composed of Earth-abundant, inexpensive, low toxicity elements. Although the diameter of the windows to these cages is smaller than the diameters of the intended guests; under certain conditions the windows can accommodate diffusion of larger guest atoms/molecules. Lattice distortions and vibrations brought on by pressure and temperature can make the structure flexible enough to allow for the diffusion of small molecules/ions. Transition state theory calculations have also estimated the diffusion rates of Ar and Kr into sodalite cages \(^3\). Compression of the rhombohedral form of silica-sodalite was performed in hopes of learning the behavior and capabilities of the structure and how to possibly improve it for waste immobilization. Also, using General Utility Lattice Program (GULP) we predict pressure dependent changes to the structures.
13. **Can Industrial Wastewater (Unilever, Ocean Spray and Biodiesel) Generated in Nevada be used as Carbon Source in Place of Conventional Carbon Sources to Treat Groundwater Contaminant - Perchlorate?**

Sichu Shrestha, Civil and Environmental Engineering and Construction

Biodegradation of perchlorate using a fluidized bed reactor (FBR) has shown remarkable results in treating water contaminated with perchlorate. Perchlorate (ClO4-) is one of the contaminants of concern for drinking water because it interferes with iodine uptake in thyroid gland and disrupts endocrine system. Perchlorate is widely detected in groundwater in United States, particularly in the southwest region. In a biological treatment process, bacteria use a carbon source/ electron donor such as ethanol and acetate, and reduce perchlorate (electron acceptor) to chloride and oxygen under anaerobic conditions. Acetate, ethanol and protein peptones are the most widely used chemicals for carbon source for perchlorate reduction. However, these chemicals are expensive to treat huge volume of water. The Henderson Perchlorate Treatment Plant uses ethanol (300 gallon ethanol/day) as carbon source. This study focuses on evaluation of wastewater from the industries- Ocean Spray (Juice), Unilever (Ice cream) and Biodiesel (Glycerol) in Nevada as a suitable alternative to those chemical carbon sources. The experiment was conducted with commonly used carbon sources- Acetate, Ethanol, Glucose, and Lactate, and the three industrial wastewater (Glycerol, Ocean spray, and Unilever). The experiment was conducted for two weeks in 300 mL air tight bottles containing 1000 mg/L perchlorate and the carbon source at 1:3 ratio, buffer, nutrients and mixed culture of anaerobic bacteria capable of reducing perchlorate. The reactors were kept on a shaker to ensure complete mix for the entire period such that the perchlorate is to below 15 parts per billion (ppb), an EPA reference dose for perchlorate. The performance of the reactor was evaluated based on perchlorate and carbon removal, and bacterial growth. Dionex ICS 2000 was used to measure perchlorate, Total Organic Carbon (TOC) test for carbon content, and turbidity, and optical density for biomass growth.
The Chi-Mun basin (CMB) is one of the largest sub-basins that contributed runoff to the Lower Mekong basin (LMB). This basin is the hub of agricultural productivity, especially rice field. The CMB has been affected by climate change in recent decades. This study consists precipitation analysis of 15 weather stations around the CMB in 55 years’ time period (1950-2005). The aims of the study are to investigate trend of precipitation and compare to El Nino Southern Oscillation (ENSO) patterns. Average precipitation of the CMB over 55 years is 1713.01 mm/year. Throughout 55 years period, the precipitation data can be divided into three periods of time which are (1) above mean precipitation: 1950-1966, (2) about mean precipitation: 1967-1990, and (3) below mean precipitation (1991-2005). The overall trend of precipitation can be represented by linear trend equation of \( y = -8.7413x + 1966.7 \). Interestingly, all precipitation data behaves as a negative trend and unrelated to ENSO. This study is beneficial for further study of climate change effects in the area in term of climate modeling and prediction.
Madden Water is needed to support all life on Earth, and water is therefore a crucial consideration for habitability on other planets. While pure liquid is not stable on the surface of Mars, it is likely that brines may exist at least temporarily. Brines, which have been shown to host life at temperatures as low as -30°C and water activities above 0.60, have different implications for life than dilute waters. Studying the impact of brines on dissolution can therefore provide insight into the possible past and present habitability of Mars.

Nontronite is an iron-rich clay mineral that has been detected on the surface of Mars. Since nontronite is found in ancient terrains, it may provide a record of previous alteration on Mars, possibly including habitable environments. An alteration signature could be produced by brine dissolution which could shed light on past conditions on Mars.

In this work, we are measuring dissolution rates of nontronite as a function of activity of water (\(\Delta^0\text{H}_2\text{O}\)) and temperature to allow further interpretation of aqueous conditions on Mars. Temperature experiments will also produce an activation energy. An alteration signature of past interaction with brines could therefore be important in providing insight into possibly habitable environments on Mars.

16. **Chemical Characterization of Dust Deposition in an Arid Environment**  
Jason Sylva, Maria Cruz and Spencer M. Steinberg, Department of Chemistry

Dust deposition can have a significant impact on the efficiency of solar collectors. Specific information is needed on dust composition, generation, and adhesion mechanisms in order to develop adaptive management strategies. If we can determine the chemical composition and particle morphology of dust, we can determine if the source is local vs. regional, or global. This characterization will also help determine the chemical interactions between the particles and various surfaces. It should also aid in understanding the role of dust in light attenuation as well as in developing cleaning protocols for solar collection devices. A variety of sampling techniques were employed to obtain particulate matter for characterization. These techniques included high/low volume air sampling, collection of dust fallout, and direct collection from solar devices and Vugs. Various analytical methods were used to characterize atmospheric particulates that can deposit on the surface of solar devices. These methods included: Raman Spectroscopy, High Performance Liquid Chromatography, Scanning Electron Microscopy X-ray Microanalysis, and Pyrolysis Gas Chromatography Mass Spectrometry. This has allowed us to identify several different minerals as well as obtain information on the organic matter present. In addition, we plan to examine particle distribution, size distribution, and trace metal concentration.
17. **Quantifying Security Risk of Network Vulnerability by Risk Conditions**  
Candace Suh-Lee, Department of Computer Science

Software vulnerabilities are the weaknesses in the software that inadvertently allow sometimes dangerous operations. If the vulnerability is in a network service, it poses serious security threats because a cyber-attacker can exploit it to gain unauthorized access to the system. Hence, rapid discovery and mitigation of network vulnerabilities have been critical issues.

In today’s dynamic IT environment, it is common practice that an organization prioritizes the mitigation of discovered vulnerabilities according to their risk levels. Currently available technologies, however, associate each vulnerability with a predetermined static risk level which does not take the unique characteristics of the target network into account. This often leads to inaccurate risk prioritization and less-than-optimal resource allocation.

In this research, we introduce a novel way of quantifying the risk of network vulnerability by augmenting the static risk level with conditions specific to the target network. The method calculates, in linear time, the risk value of each vulnerability by measuring the proximity to the untrusted network and risk of the neighboring hosts. The resulting risk value is the composite index of the individual risk, network location and neighborhood risk conditions. Thus, it can be effectively used for prioritization, comparison and trending; and therefore, reduce the time and cost of mitigation by enabling fast and accurate risk prioritization.

We tested the methodology in various network models and found the results were well in line with the generally accepted network security principles. Further work is in progress to verify the results with empirical data.
18. Time-Scale Variations of Long-Term Changes in Streamflow for Continental USA
Kazi Tamaddun, Department of Civil and Environmental Engineering and Construction

Change in climatic conditions as a result of global warming has become one of the most crucial issues of the present time. Climate variability is causing many changes in the natural environment including the hydrologic cycle, which influences the inadequate water resources. Meeting the demand of limited water resources with the increasing population has become a big challenge for water resource managers. Analyses of trends in hydrologic variables (i.e., temperature, precipitation, streamflow etc.) have been helpful to deduce changing patterns in global and local climate. This study focuses on detecting long-term (gradual) and short-term (abrupt) trends in streamflow pattern of the continental USA. The spatiotemporal distributions of these patterns were also assessed.

Discrete Wavelet Transform (DWT), which is a relatively new technique used in spectral analysis, has been used in this study to analyze the streamflow of time-series data. DWT has been used to decompose the data into lower resolutions which were then analyzed with statistical tools. Modified Mann-Kendall (MK) trend tests were used to analyze long-term trends whereas Pettit test was used to analyze abrupt shifts or steps. Records from 237 unimpaired streamflow stations with 62 years (i.e., 1952-2012) of continuous data were collected and the streamflow patterns were analyzed for water-year, four seasons (Fall, Winter, Spring and Summer) and three different dyadic scales (i.e., 1 year, 2 years and 4 years). The results of this study may assist water managers to efficiently plan and manage the water resources under changing climatic conditions on different time-scales.

19. **DTF Analysis of the Resistivity and Magnetization of Tc5I13**  
Jarod Wollfis, William Kerlin, Keith Lawler, Frederic Poincieu, Kenneth Czerwinski, Al Sattelberger and Paul Forster, Department of Chemistry

A new binary halide structure type has been discovered with the composition Tc5I13. The structure contains a molecular unit that can be pictured as containing a square pyramid of technetium atoms connected by metal-metal bonds surrounded by iodide. Despite the molecular connectivity, the compound appears to show electrical conductivity. In order to verify the experimental resistivity and magnetic susceptibility, Density Functional Theory (DFT) calculations were performed using Vienna Ab-initio Simulation Package (VASP). After carrying out a number of different computational approaches, we established that the most reasonable simulation results predict electronic and magnetic properties consistent with experimental values. The picture of the electronic structure provided by the calculations provides our experimental collaborators with a means of explaining the interesting physical properties in this new solid.
Graduate & Professional Student Research Forum  
*Science and Health Science*  
Poster Session A  
UNLV Student Union Ballroom

**Posters 20 – 24: Judging at 8:45 – 10:00am**

20. Cindy Lee-Tataseo, Department of Health Care Administration and Policy  
21. Israel Alvardo, School of Life Sciences  
22. John Harry, Department of Kinesiology and Nutrition Sciences  
23. Jennifer Brown, School of Dental Medicine  
24. Kaylee Wonder, School of Dental Medicine

10:00 – 10:15am Break

**Posters 25 – 29: Judging at 10:15 – 11:30am**

25. Kristyne Bartel, Department of Kinesiology and Nutrition Sciences  
26. Caldonia Hartel, School of Life Sciences  
27. Ecsile Chang, School of Dental Medicine  
28. Jessica Dick, School of Dental Medicine  
29. Michelle Farnoush, School of Dental Medicine
20. Review of IRB processes and metrics for IRB review at UNLV
Cindy Lee-Tataseo, Department of Healthcare Administration and Policy

The process of the Institutional Review Board (IRB) can vary from institution to institution. They can sometimes be mysterious to those who submit for IRB review. This poster will describe the process for IRB review at UNLV and shed light on our local review processes. In addition, metrics describing the types of protocols being reviewed as well as the number of reviews and the amount of time it takes for review will be presented. These will be compared to national averages for institutions that report metrics to the public.
21. **Inhibition of *Paenibacillus larvae* Spore Germination**
Israel Alvarado, Michelle Elekonich and Ernesto Abel-Santos, School of Life Sciences

**Background:** American Foulbrood (AFB) is a honey bee larval disease caused by *Paenibacillus larvae*. No effective means to eradicate AFB exists because the infectious *P. larvae* spores are resistant and can remain dormant indefinitely. As spore germination is required for AFB disease development, inhibition of spore germination may prevent disease. We previously identified triggers (L-tyrosine plus uric acid) and inhibitors (indole or phenol) of *P. larvae* spore germination in vitro. In this study, we screened 40 indole and phenol analogs for their ability to act as antagonists of *P. larvae* spore germination. We hypothesized that the addition of functional groups to indole and phenol molecules would enhance their inhibitory effect.

**Methods:** To test for antagonists of *P. larvae* spore germination, spores were incubated with indole and phenol analogs. After incubation, triggers of germination were added to the spores. Germination rates were calculated using the initial linear decrease in relative optical density.

**Results:** Ten of the 40 indole analogs were strong inhibitors of *P. larvae* spore germination. The half maximal inhibitor concentration (IC50) for analogs ranged between 0.02-0.55 mM. Furthermore, we found that indole and phenol analogs prevented spore germination in nutrient rich medium.

**Conclusions:** Indole analogs with electron withdrawing groups (EWG) were capable of inhibiting spore germination in vitro. Halide and nitro groups enhanced indole’s activity by 20 fold and could be used to synthesize germination inhibitor analogs. The indole and phenol analogs identified will be used to determine if inhibiting *P. larvae* spore germination prevents AFB disease in honey.

Presentation: General Meeting of the American Society for Microbiology, May 2014
22. **Effects of Dual-Tasking on Spatio-Temporal Gait Parameters in Children with Cerebral Palsy**

John R. Harry, Robbin Hickman, Szu-Ping Lee, Brendan Morris and Janet S. Dufek, Department of Kinesiology & Nutrition Sciences

**Background:** The ability to dual-task is more challenging for children with cerebral palsy (CP) than for typically developing children. Yet, little is known about the effects of dual-tasking on functional ambulation in this population.

**Purpose:** To examine the effects of dual-tasking on spatio-temporal characteristics of gait in children with CP.

**Methods:** Five assenting children with CP (four boys, one girl; 7.0±0.9 yrs, 125.7±6.5 cm, 26.0±4.5 kg) participated in the experiment and walked twice across the GAITRite® instrumented walkway system (CIR Systems Inc./GAITRite, Sparta, NJ; 120 Hz) at their self-selected speed. Next, participants completed the same walking protocol while simultaneously carrying a tray, similar to what they might do in a school lunchroom. Foot pressure data were extracted and analyzed by footfall to compare stride length, stride rate, base of support width, double support time, and stride velocity for each condition. Data were evaluated using a single-subject procedure (Model Statistic, Î± = 0.05). Results: Three children significantly reduced their stride length when dual tasking (87.2±9.1 vs. 79.4±19.5 cm; p<0.05) while one showed an unexpected increase. (86.9±0.0 vs. 96 2±0.0; p<0.05). Two of five children significantly reduced their stride velocity, (84.8±16.6 vs. 68.4±17.0 cm/s; p<0.05), and unilateral base of support reduced in two children (11.8±1.3 vs. 8.3±0.5 cm; p<0.05). Only one of five children demonstrated a reduction in stride time. (1.13±0.07 vs. 1.05±0.05 s; p<0.05)

**Conclusion:** Dual-tasking significantly altered certain gait parameters in children with CP, although the change was inconsistent for stride length.

Presentation: 33rd Annual Meeting of the American College of Sports Medicine Southwest Chapter, Costa Mesa, CA. October 17 – 18, 2014
23. **Toll-like Receptor 2 Activation Increases Expression of Platelet-Activating Factor Acetylhydrolase**  
Jennifer Brown, School of Dental Medicine

**Objectives:** Toll-like receptor 2 (TLR2) is a member of the TLR family of pattern-recognition receptors which play a fundamental role in the activation of innate immunity. *Porphyromonas gingivalis (Pg)* is an oral pathogen associated with the early onset of periodontitis and the atypical lipopolysaccharide (LPS) of *Pg* is an agonist for TLR2. While activation of TLR2 mediates the production of numerous inflammatory cytokines, the objective of this study was to investigate whether TLR2 signaling would also alter the expression of the anti-inflammatory enzyme platelet-activating factor acetylhydrolase (PAF-AH).

**Experimental Methods:** Human Mono-Mac 6 cells were cultured in RPMI media supplemented with 10% FBS. Cells were grown in 24-well tissue culture plates at an initial density of 2 X 105 cells/mL and then treated with *P. gingivalis* LPS (0-1000 ng/mL) or a synthetic ligand of TLR 2 (PAM3CSK4, 10-1000 ng/ml). TLR2, TLR4, and PAF-AH RNA levels were examined by quantitative Real-Time PCR. Activation of intracellular signaling cascades implicated in TLR2 receptor activation was examined by using specific pharmacological inhibitors.

**Results:** Treatment of MM6 cells with either *P. gingivalis* LPS or PAM3CSK4 resulted in a dose-dependent increase in PAF-AH expression which reached a maximum of 5-fold at 24-hours after administration. TLR2 receptor activation also resulted in a roughly 2-fold increase in TLR2 expression while TLR4 expression remained unchanged. The administration of pharmacological inhibitors of various MAPK pathways demonstrated significant inhibition of PAF acetylhydrolase expression by blocking both the p38 and JNK MAPK pathways.

**Conclusions:** Human monocyte/macrophages exposed to *P. gingivalis* LPS increased TLR2 expression resulting in enhanced responsiveness to bacterial pathogens. The expression of the major PAF degradative enzyme, PAF-AH, also increased substantially. Up-regulation of PAF-AH by periodontal disease causing agents likely represents a compensatory mechanism to control local PAF levels in inflammatory situations.
24. **Oral Microbial Burden of Periodontal Pathogens among Orthodontic Patients**
Kaylee Wonder, School of Dental Medicine

**Objectives:** Although many studies of orthodontic patients have necessarily focused on changes in levels of cariogenic pathogens associated with bracket placement, fewer studies have examined the role of changes of periodontal pathogens – particularly among adult patients. In addition, recent evidence has suggested that increased levels of a specific periodontal pathogen, *Fusobacterium nucleatum*, may also increase risk for development of colon cancer in adults through direct pathways. Based upon this evidence, the objective of the current study was to screen saliva samples taken from orthodontic patients at UNLV-SDM to determine the prevalence of periodontal pathogens, including *F. nucleatum*.

**Methods:** Following an OPRS (human subjects) approved protocol, saliva samples were collected at random from orthodontic patients over the course of several weeks. DNA was subsequently isolated from these samples and screened using polymerase chain reaction (PCR) for the presence of *Fusobacterium nucleatum*, *Treponema denticola* and *Porphyromonas gingivalis*, using primers designed specifically to distinguish these organisms.

**Results:** From the 56 samples collected and analyzed to date, *F. nucleatum*, *P. gingivalis*, and *T. denticola* were detected in 16.1%, 17.8% and 29%, respectively. No significant differences were found between males and females or between minority and non-minority patients.

**Conclusions:** These findings support previous evidence that a significant proportion of orthodontic clinic patients may harbor periodontal pathogens at levels high enough for detection from unstimulated saliva samples, but suggest some pathogens – including *T. denticola*, may be present at much higher levels within this population. These findings are important to determine the changes to oral health that adult patients within this population may face during orthodontic treatment and may suggest these patients could benefit not only from dental care and periodontal disease treatment, but also from increased education or awareness regarding the possibility of increased risk for the development of colon cancer among some patients.
25. **Relationship between Resistance Band Tension and Muscle Activity during Use of a Hip Exercise Device**  
Kristyne Bartel, Austin Coupé and Janet Dufek, Department of Kinesiology and Nutrition Sciences

Numerous exercise equipment companies have introduced products for training that incorporate resistance bands often with little known about the relationships among the bands and muscle activation (EMG) during exercise. One device using bands for resistance is a thigh trainer, intended to target hip ab/adduction strength. The purpose of this study was to determine the relationship between changes in band tension and corresponding muscle activity when using a thigh trainer. Ten healthy male subjects (81.3±13.2 kg; 1.73±0.07 m; 24.7±1.1 years) granted consent and were instrumented with EMG electrodes on the adductor longus, a primary hip adductor, and gluteus medius, a primary hip abductor. Participants used the thigh trainer for 30 seconds at each resistance (low, moderate, high) while muscle activity was recorded. The changes in muscle activity between each resistance was compared to changes in tension produced between each resistance level. Resistance bands showed an 11% change between low and moderate and 5.4% change between moderate and high resistance, with strong correlations at each strain. This was compared with changes in muscle activity at each level of resistance band. In comparison, gluteus medius EMG activity exhibited a 3.7% change between low and moderate and 5.7% change between moderate and high resistance. Adductor longus EMG activity showed a 13.1% change between low and moderate and 24.3% change between moderate and high resistance. These findings suggest that muscle activity may increase disproportionately in comparison to the physical resistance exhibited by resistance bands.
Caldonia Hartel, Sean Neiswenter and Brett Riddle School of Life Sciences

Continued drought in the American Southwest has caused a reduction in unique isolated water dependent desert habitats. This loss will lead to the extinction of local animal populations dependent on such habitats, with small isolated populations at a higher risk for local extinction. *Sigmodon arizonae* is a species of cotton rat dependent on such disappearing habitats and has one small isolated population along the Lower Colorado River. With a predicted decrease in suitable habitat along the Lower Colorado River, this population is at a very high risk for extinction. This population can be protected by state and federal law, allowing conservation efforts to be put in place. However, this requires proof that this population is genetically distinct from the rest of the species. If conservation efforts are successful, it will likely result in the preservation of a disappearing habitat.

Past research on this population suggested that the river populations was unique from the rest of the species, but it had poor confidence levels, not allowing for any robust conclusions. To better answer this question, I will be analyzing 20 highly variable DNA markers, called microsatellites, in individuals spread across *S. arizonae's* range. No microsatellite markers are currently available for this species, leading me to develop my own from genomic data. We expect, when the microsatellites are completed and analyzed, that they will show the river population as genetically unique from the rest of the species, allowing for conservation efforts to take place, and a unique habitat to be preserved.
27. **Oral Prevalence of Fusobacterium Nucleatum Reveals Age-Related Colon Cancer Risks**  
Ecsile Chang, School of Dental Medicine

**Background:** *F. nucleatum* is a gram-negative anaerobe mainly associated with the onset and development of periodontal disease. Recent studies have suggested oral prevalence of *F. nucleatum* may also increase risk for development of colon cancer through both direct and indirect pathways. The purpose of this cross-sectional study was to screen saliva samples taken in a dental school to determine the prevalence of *F. nucleatum* in this population.

**Methods:** Using an approved protocol, saliva samples were collected at random from patients over a three month period. Basic demographic information was also collected to assist with data analysis, but with no patient identifying information. In brief, DNA was isolated from these samples and subsequently screened for the presence of *F. nucleatum* and *Treponema denticola* using polymerase chain reaction (PCR) and primers designed specifically to distinguish these organisms.

**Results:** From these ninety (90) samples, DNA was successfully isolated from 88 for a recovery rate of 97.8%. Overall, 56.9% of samples tested positive for *F. nucleatum* and 44.4% tested positive for *T. denticola*. Sorting these patients according to age, these results demonstrated that 81.8% of samples from patients (>50 yrs) tested positive for *F. nucleatum* compared to patients (<50 yrs), 17.8% of whom tested positive. Similarly, 50% of patients (>50 yrs) tested positive for *T. denticola*, with only 35.7% of patients (<50 yrs) testing positive.

**Discussion:** These findings suggest that within the UNLV-SDM clinic population, a significant proportion of patients were found to harbor both *F. nucleatum* and *T. denticola*. Sorting these results by age revealed a much higher prevalence for both periodontal disease-associated organisms in patients over 50. These results suggest that such patients may benefit not only from dental care and periodontal disease treatment but also from increased education and awareness regarding increased risk for the development of colon cancer.
28. Analysis of Gender-Specific Differences in Oral Melatonin Receptor Expression
Jessica Dick, School of Dental Medicine

**Background:** Melatonin is a natural circadian-regulated hormone that is involved in the regulation of the sleep-wake cycle. Melatonin is also available as a dietary supplement and has recently been tested for efficacy in a randomized, double-blind, placebo-controlled crossover trial involving sleep disruption. Because melatonin disruption may also be associated with oral cancer, and major differences are found in oral cancer risk between females and the primary objective goal of this study was to evaluate gender-specific difference in the expression of melatonin receptors among dental clinic patients.

**Methods:** Following IRB approval, patients in the dental clinic waiting area were randomly asked to participate in the study over several weeks, which involved the collection of saliva and non-identifiable demographic information. DNA and RNA were subsequently extracted from the saliva samples and screened for melatonin receptor expression.

**Results:** From 122 samples collected, 75 had sufficient RNA and demographic information available to for analysis. Samples were nearly equally female (n=37/75 or 49.3%) and male (n=38 or 50.7%). Average RNA recovery was approximately 771 ng/μL, which was not significantly different between females and males (p >0.05). However, the preliminary RT-PCR screening of melatonin receptors may suggest there are some differences in expression between males and females – although this may not be statistically significant.

**Conclusion:** Although some studies have evaluated gender expression differences in melatonin, these focused on insomnia and other sleep-related disorders. This study may be among the first to examine the role of gender in healthy oral tissues from adults specifically for expression of the three primary melatonin receptors. As oral cancer risk is greatly increased for males compared with females, and the likelihood of dietary supplementation is also greatly influenced by gender, understanding the natural distribution of melatonin receptor function between males and females would increase our understanding for the importance of potential responsiveness and the relationship with oral health.
Melatonin (MLT) Supplementation Reveals Differential Receptor Effects in Oral Carcinomas
Michelle Farnoush, School of Dental Medicine

**Background:** The pineal gland hormone melatonin (MLT) is integrally involved with sleepwake regulation and daily circadian cycles. Some evidence has suggested dysregulation of MLT may be associated with the onset of various conditions, including insomnia, depression and various types of cancer – including oral cancer. To date, however, few studies have evaluated the role of age specific to MLT dysregulation and these conditions despite the fact each may be positively associated with age. In fact, age is the single best predictor for dietary supplementation using MLT. Based upon this evidence the goal of this study was to perform a cross-sectional analysis of dental clinic patients to evaluate MLT regulation by age.

**Methods:** Using an approved protocol, saliva samples were collected at random from patients ranging in age from 20 – 70. Samples were de-identified, along with demographic information for analysis. Following centrifugation, DNA and RNA were extracted from each sample for screening and analysis using PCR primers specific for the MLT receptors MT1, MT2 and RZR.

**Results:** Of the 75 samples collected, DNA and RNA was successfully isolated from 70 samples, yielding a recovery rate of 93.3%. RNA analysis revealed an age-dependent decrease in overall mRNA per cell between samples taken from patients over 50 years of age (n=35) compared to those under 50 (n=35). In addition, RT-PCR against the mRNA standard GAPDH also revealed negative correlation with age. Even after adjusting for cell number and mRNA level, on-going analysis of MLT receptors MT1, MT2 and RZR appear to confirm an age-related decrease in MLT receptor mRNA expression.

**Conclusion:** Although previous studies have demonstrated melatonin dysregulation associated with many conditions, and that dietary MLT supplementation is also age-related, few studies have explicitly studied the variable of age and the expression of MLT receptors in cells of the oral cavity. Because the incidence and risk of oral cancers is also age-related, and some research now suggests that MLT activity and receptors may be down-regulated in oral cancers, more evidence and analysis will be needed to more specifically identify the variables that may influence MLT levels, regulation and risk – including the role of age.
Graduate & Professional Student Research Forum
Science and Health Sciences
Poster Session D
UNLV Student Union Ballroom

Posters 30 – 35: Judging at 8:30 – 10:00am

30. Austin Coupé, Department of Kinesiology and Nutrition Sciences
31. Theresa Clark and Andrew Russell, School of Life Sciences
32. Saro Oknaian, School of Dental Medicine
33. Sanae El Ibrahimi, School of Public Health
34. Alexa Standerfer, Department of Physical Therapy
35. Brady Petersen, School of Dental Medicine

10:00 – 10:15am Break

Posters 36 – 40: Judging at 10:15 – 11:30am

36. Tori Stone, Department of Kinesiology and Nutrition Sciences
37. Katelyn Porter, School of Life Sciences
38. Jared Wilson, Department of Kinesiology and Nutrition Sciences
39. Kory Grahl, School of Dental Medicine
40. John Silvaroli, School of Dental Medicine
30. **Effect of Outsole Degradation on Running Kinetics and Kinematics**  
Austin Coupé, Julia Freedman Silvernail and Janet Dufek. Department of Kinesiology and Nutrition Sciences

**Purpose:** The purpose of this project was to expand on the knowledge of how running shoes affect running mechanics. Specifically, we sought to explore the changes that occur as shoes become worn and broken down after outdoor running.

**Methods:** A pilot subject (27 years; female; 1.61m; 53.5kg) volunteered. Outsole thickness measurements were taken of the test shoes (Nike Free 5.0) using an ultrasonic thickness gauge. The subject ran in test shoes across a 15m runway in the biomechanics laboratory, striking a force platform. Ten successful trials were completed which included contact with one foot on the force platform while running at 3.5m/s±5%. The subject ran outdoors in the test shoes at preferred pace and schedule to accumulate wear. After 130 miles of outdoor running the subject returned to the laboratory and repeated data collection procedures. Paired samples t-tests ($\alpha=0.05$) were conducted on material, kinematic, and kinetic variables.

**Results:** Materials: Significant outsole degradation was observed in forefoot and rearfoot regions of both shoes ($p<0.05$). Kinematics: Rearfoot eversion angle at contact and maximum value were significantly different ($p<0.05$); total eversion excursion and angle at toe-off were not ($p>0.05$). Kinetics: Vertical impact peak, time to impact peak, and maximum vertical force were all significantly different ($p<0.05$).

**Conclusion:** 130 miles of wear caused significant changes to both running shoe outsole composition and running mechanics. It is uncertain if these changes in running mechanics affect the risk of suffering a running-related injury. Additional research is needed to determine where the injury risk/shoe alteration threshold lies.
31. Can Desert Mosses Hide from Climate Change? The Buffering Capacity of Moss Microclimates
Theresa Clark, Dale Devitt, Lloyd Stark and Alexander Russell, School of Life Sciences

In arid environments of the American Southwest, mosses perform many ecosystem functions such as soil stabilization and habitat provisioning for small organisms, while some 400 species contribute substantially to plant diversity in deserts, scrublands, and arid woodlands. Although these arid-adapted mosses are renowned for their ability to revive after complete desiccation, their ability to tolerate increasing climatic stress in the face of climate change is unclear. My research seeks to explore the hypothesis that desert mosses may evade the extremes of climate change by living in climatically buffered microhabitats that prolong periods of rehydration and slow desiccation rates. My first objective was to estimate the capacity of rock and shrub microhabitats to buffer moss cushions from ambient climatic conditions at the Blackbrush and Montane Zones of the NevCAN (Nevada Climate Ecohydrological Assessment Network) ecological transect in the Desert National Wildlife Refuge. At each site, we used micro-sensors (iButtons®) to monitor temperature and humidity adjacent to 10 moss cushions located within 50-m of the station. In order to explore the influence of micro-aspect and micro-slope on microclimate, several iButtons were spatially paired with monitored mosses and their simultaneous temperature and humidity levels for comparison. A microhabitat was classified as buffered if an iButton recorded lower temperatures or higher humidity levels than simultaneous readings from the local climate tower. Future work will incorporate measurements of light levels and physiological stress response of the mosses to ascertain if statistically significant buffering of microclimates translates into a physiological buffer to the moss.

32. Interactive Effects of 1,25-Dihydroxyvitamin D3 and Soy Protein Extract (SPE) on Oral Cancer Proliferation In Vitro is Mediated, in Part, by Expression of the Vitamin D Receptor (VDR)
Saro Oknaian, School of Dental Medicine

**Background:** Recent studies have found soy, soy extracts, and specific soy isoflavones (Genistein) demonstrate inhibitory properties against many cancers, including oral cancer. Other research has demonstrated similar effects induced by Vitamin D3 (VitD). Preliminary work by this group has demonstrated interactive effects that suggest each compound may potentiate the effects of the other, thereby amplifying their anti-tumor effects.

**Objective:** Based upon this information, the primary objective of this study was to investigate the expression of the Vitamin-D receptor (VDR) in response to VitD and SPE administration, singly and in combination, in oral cancer and normal cell lines in vitro.

**Methods:** Using three oral squamous cell carcinoma cell lines (SCC15, SCC25 and CAL27) and the normal oral cell line (HGF-1), RNA was isolated from each cell line following VitD (125 nmol) and SPE (10 uM) administration at concentrations approximating the normal physiologic range. Quantitative RT-PCR was performing to determine any changes in mRNA expression for the VDR receptor over time.

**Results:** Administration of VitD appeared to modulate and increase mRNA expression of VDR in CAL27, SCC25, SCC15 and HGF-1 cell lines (1.91-, 1.88, 1.95- and 1.97-fold, respectively). In addition, SPE administration was also sufficient to induce an increase in mRNA expression of VDR in these cells (2.03-, 1.72-, 1.93-, and 1.65-fold, respectively). Moreover, the concomitant administration of VitD and SPE appeared to induce an additive effect on mRNA expression of VDR, increasing expression by 2.81-, 2.30-, 2.18- and 2.11-fold, respectively. In addition, these increases were associated with a corresponding inhibition of oral cancer proliferation that appeared to function synergistically with dual administration of SPE and VitD – although these effects were not observed in the normal cell line, HGF-1.

**Conclusion:** Administration of VitD and SPE are sufficient to induce an increase in mRNA transcription of the VDR receptor and may function in a positive-feedback loop to activate this pathway, which appears to remain function among the normal and oral cancer cells examined in this study. However, the distinct effects of activating these pathways appear to have anti-growth effects in the cancerous cells that were not observed in the normal cell line control. This may suggest further research into the activation of VDR pathways may provide alternative mechanisms that could be utilized to control oral cancer growth without significant deleterious effects on normal cells and tissues.
33. **Lower Education and Hispanic Race Influence Quality of Care of Breast Cancer Patients and Survivors**
Sanae El Ibrahimi and Paulo Pinheiro, School of Public Health

**Background:** Patient-healthcare provider communication is vital to ensure quality of care for cancer patients and survivors. It is unknown whether cancer patients receive equal level of quality of care.

**Methods:** We identified breast cancer patients and survivors who responded to the 2011 Cancer Self-Administered Questionnaire (CSAQ). Absence or brief discussion with patients about: follow-up of care; long-term side effects of cancer treatment; emotional or social needs; and health promotion recommendations was categorized as receiving poor quality of care. Multivariate logistic regression examined the odds of reporting receipt of quality care based on educational attainment and race.

**Results:** A total of 253 respondents reported breast cancer diagnosis, which corresponds to a weighted total of 3,156,088 patients. Poor quality of care was reported by 40% of respondents. Of these, 16% had less than a high school diploma and 9% were of Hispanic race/ethnicity. Compared to Whites, Hispanics were 18% less likely to receive quality care [adjusted odds ratio (aOR) = 0.82; 95% CI = 0.0.17-0.91]. Respondents with higher education were 5 times (aOR = 5.0; 95% CI = 2.04-12.29) and 4 times (aOR = 3.9; 95% CI = 1.36-11.17) (college and graduate degree respectively) more likely to receive quality care compared to those with lower education.

**Conclusion:** Low educational attainment and Hispanic race/ethnicity are determinants of receiving poor quality of care for breast cancer patients and survivors. It is important that the medical community be more sensitive to educational and language barriers when communicating with patients.

Presentations: National Institutes of Health headquarters, Bethesda MD, hosted by the Hispanic Serving Health Professions Schools, July 24-25 2014
The Effects of Locomotion-Induced Shock Loading on Tibiofemoral Bone Stress Injury
Alexa Standerfer, Karen Daun and Suzenna Ngo, Department of Physical Therapy

**Background and Purpose:** The purpose of this study is to investigate the biomechanics of the lower extremity and knee bone stress injury induced by walking, which contributes to the development of osteoarthritis (OA). As the disease develops there is damage to the joint surfaces and underlying bone, and biomechanics of the knee joint play a role in damaging this joint. Recent studies have shown that an increase in bow-legged alignment increases the load placed on the medial compartment of the knee, leading to bone stress at the joint, and creating a precipitating factor for OA.

**Subjects:** The study involves 5 male and 5 female subjects (age= 50-65 years; males=5, females=5) with no current diagnosis of OA.

**Methods:** The outcome measures taken on Day 1 are the Global Physical Activity Questionnaire (GPAQ), medical history questionnaire, dominant leg static lower extremity alignment, and dynamic peak frontal angle during locomotion. During day 2, a Magnetic Resonance Imaging (MRI) is performed on subjects before and after walking performed on treadmill. Water content present in the knee shown in the MRI will be analyzed to observe bone stress injury or bone marrow edema caused by walking.

**Results:** Our study is still currently underway, but we anticipate seeing patients with excessive bow-legged alignment to have an increase in water content in the medial compartment of the knee when their MRI is analyzed after walking.

**Discussion:** Lower extremity biomechanics will play a role in bone stress of the medial compartment of the knee joint, especially after walking.
35. **Exosome Analysis: Isolation of Oral Squamous Cell Carcinoma MicroRNA in Culture**
Brady Petersen, School of Dental Medicine

**Background:** Exosomes derived from oral cancer cells, also called Oncosomes, are membranous vesicles secreted into the surrounding extracellular environment, which are now known to regulate and modulate oral squamous cell carcinoma (OSCC) progression through the horizontal transfer of bioactive molecules, including proteins, lipids and microRNA (miRNA). To date, only one study has demonstrated the secretion of exosomes from cultured OSCC cells, which could potentially facilitate research and possible new treatment modalities.

**Objective:** Based upon this information, the primary goal of this study was to examine the potential to isolate and evaluate exosomes from oral cancer cell lines, as well as normal non-cancerous controls.

**Methods:** The OSCC cell line SCC25 and normal oral cell line HGF-1 were cultured for supernatant collection, which was subsequently centrifuged to remove all intact, but non-adherent cells. RNA was then extracted from the supernatant, as well as from the cytoplasm from each cell line.

**Results:** Molecular screening using primers specific for miRNA to miR-16, -21, -122, -133 and -155 revealed differential expression of miR-21, miR-133 and miR-155 in the cellular fraction of the OSCC cell line, with differential expression of miR-16 in HGF-1 cells. Analysis of supernatant fractions required repeated concentration via centrifugation to detect exosome miRNA, including miR-21, miR-133 and miR-155 from SCC25 supernatant but only miR-16 was detected in the supernatant from HGF-1 cells.

**Conclusions:** Because most cases of OSC are detected in advanced stages, finding a reliable, non-invasive early stage diagnostic marker would facilitate screening and increase possible treatments. This study supports the initial finding that tumor-derived exosomes can be analyzed from in vitro cell cultures, which may allow for further development of discriminatory biomarkers from other pre-malignant and malignant cell cultures that can be applied to saliva and other fluid diagnostic platforms.
36. **An Evaluation of Select Physical Activity Exercise Classes (PEX) on Markers of Bone Mineral Density**  
Tori Stone, Chase LaComb, James Navalta, Jack Young, Richard Tandy, Laura Kruskall and Patricia Alpert, Department of Kinesiology and Nutrition Sciences

The purpose of this research is to assess the efficacy of select structured physical activity classes. We intend to determine their effect on bone mineral density (BMD) as measured through Dual Energy X-Ray Absorptiometry (DEXA) scans, and analysis of biochemical markers osteocalcin and bone alkaline phosphatase (BAP). According to the National Institute of Health consensus, Osteoporosis causes premature disability in approximately 44 million people (National Institute of Health [NIH], 2001), 80% of this population being women (Ulrich, Georgiou, Gillis, & Snow, 1999). This disease causes 1.5 million fractures annually, 700,000 occurring at the spine (NIH, 2001). One prevention technique is to build bone mass in young adult life (Almstedt, Canepa, Ramirez, & Shoepe, 2011). Several publications positively correlate increases in BMD with increased exercise. BMD can be observed through DEXA scans, and monitoring biochemical markers, osteocalcin and BAP. As part of a prospective cohort study design participants will include females, ages 18-35 years, enrolled in either yoga (N=14) or cardio-kickboxing (N=14) classes provided by the University of Nevada, Las Vegas. Twelve individuals will serve as controls. Participants will provide baseline hip, spine, and total body DEXA scans, blood samples, and complete questionnaires. Participants will then be asked to return for testing after completion of the semester course to provide post DEXA scans and blood samples.
37. The Role of Mfd in Oxidative Damage Repair
Kate Porter, Amanda Prisbrey, Carmen Vallin and Eduardo A. Robleto, School of Life Sciences

Since the 1950s it has been shown that bacterial cells accumulate mutations even in non-dividing conditions. However, how this type of mutation occurs is still highly debated. This is an underestimated area of evolution because cells spend most of their time in non-replicating conditions. Recent evidence in B. subtilis suggests that transcription factor Mfd mediates the formation of mutations in stationary-phase or non-replicating cells by interacting with different repair systems. Mfd is a part of transcription coupled repair, a pathway that preferentially targets transcribed genes. Here we examine the hypothesis that Mfd mediates the formation of mutations by interacting with cellular components that repair oxidative damage. We test this hypothesis by determining whether Mfd affects cell viability after exposure to hydrogen peroxide in stationary phase. Our experiments showed the following: 1) Deficiencies in Mfd result in significant loss of cell viability after exposure to hydrogen peroxide and 2) the level of transcription in the cell modulate the effect on viability. These results are significant because they suggest that: i) oxidative damage is an intermediate in the formation of stationary-phase mutations and ii) Mfd has different roles in DNA repair and mutagenesis.

Presentation: Wind River Conference on Prokaryotic Biology, June 2014
Introduction: Exercise induces acute physiology changes, especially in cells of the immune system. Emerging research suggests that the lymphocyte immune response during exercise is significantly increased in individuals who are positive for human cytomegalovirus (HCMV+). Specifically, lymphocytes have been shown to increase in cell volume as exercise intensity increases and undergo a significant drop in cell volume upon the cessation of exercise. However, characterization of the monocyte and granulocyte response is unknown. HCMV, a type of herpes virus, infects 50% or more of the adult population. HCMV remains dormant in healthy individuals, but can begin to elicit symptoms when the immune system is compromised, such as after intense exercise.

Purpose: The purpose of this study is to characterize the lymphocyte, monocyte, and granulocyte responses to exercise in HCMV+ individuals.

Methods: Participants will be male and female, between the ages of 18 and 44 years old, in good health according to the American College of Sports Medicine pre-participation screening questionnaire, and be either positive for HCMV (HCMV+, dependent variable) or negative for HCMV (HCMV-, control variable). Participants will visit the lab on three separate occasions: (1) HCMV screening, (2) 100% VO2max test, (3) 80% VO2max run for 20 minutes. Blood samples will be taken during the third visits before exercise and for one hour in the post-exercise period. Independent t-tests will be used to compare leukocyte responses between the HCMV+ and HCMV- groups.
39. **Role of Race/Ethnicity and Melatonin Expression among Healthy Adults**  
Kory Grahl, School of Dental Medicine

**Background:** Many studies have evaluated the role of race and ethnicity regarding oral cancer risk, with higher risk highest among minority males. However, fewer studies have evaluated the role of melatonin disruption and dysregulation and the potential for cellular responsiveness via melatonin receptors, specifically evaluating race or ethnicity. Based upon this paucity of evidence, the main goal of this project was to evaluate healthy adult dental clinic patients.

**Methods:** Using approved Human Subjects Protocols patients provided non-stimulated saliva samples. Demographic information was also concurrently collected without specific patient identifiers. DNA and RNA were then isolated and evaluated.

**Results:** Of the 196 samples collected, 62.7% were taken from patients self-identified as White/Caucasian while 37.3% were taken from minorities. These data were significantly different from the overall clinic demographics, which suggest Whites represent only 40.8% and minorities 59.2% ($\chi^2=196.46, \text{ d.f.}=1, \text{ p}<0.001$). Following DNA and RNA isolation other differences were found, such as slightly higher concentrations among non-minority participants, which may have been influenced by selection bias. However, preliminary results of the melatonin receptor screening have not yet revealed any statistically significant differences based upon race or ethnicity.

**Conclusion:** Recent evidence has suggested that racial and ethnic minorities may have increased risk for oral cancer and may also have comparatively lower survival rates and reduced clinic outcomes. Although melatonin disruption and dysregulation are known to increase oral cancer risk, few studies have tried to evaluate the role of race or ethnicity with regard to tissue responsiveness. This study may be among the first to evaluate the role of race and ethnicity, specifically to evaluate the expression of receptors specific for melatonin, which may provide more specific guidelines and suggestions for racial and ethnic minorities to help reduce the incidence and severity of oral cancers.
40. **Correlation between Folate Supplementation and the Proliferation and Survival of Oral Squamous Cell Carcinomas**  
John Silvaroli, School of Dental Medicine

**Background:** Although increased folate utilization and DNA hypermethylation are common features of oral cancers, less is known about the specific mechanisms associated with folate intake among these tumors. The goal of this project was to examine the role of specific folate intake receptors, including the potocytosis-mediated caveolin receptor and the human reduced folate carrier (hRFC) in oral cancers under conditions of folate supplementation.

**Methods:** Using human squamous cell carcinoma SCC15, SCC25 and CAL27 cell lines, 100 micromol folic acid (FA) and 400 micromol FA were administered in vitro to simulate the approximate normal physiologic and supplementation levels of FA found among US adults.

**Results:** The addition of FA at the physiologic and supraphysiologic levels increased oral cancer cell proliferation in a dose-dependent manner from a range of +62% in SCC25 cells to +101% in SCC15 cells and +128% in CAL27 cells – compared with +11% in HGF-1 normal oral cell line controls. RNA collected from cells at the supraphysiologic FA concentration was screened using RT-PCR, which revealed an increase in hRFC mRNA transcription in CAL27 cells of 3.1-fold, 4.8-fold in SCC15 cells, 1.6-fold in SCC25 cells, but a decrease of -0.22-fold in the normal HGF-1 cells. In addition, the addition of folate stimulated an increase in cav mRNA transcription of 3.5-fold in CAL27, 4.6-fold in SCC15, 4.1-fold in SCC25, but only 1.5-fold in HGF-1 cells.

**Discussion:** These results suggest a preferential up-regulation in mRNA transcription in both hRFC and caveolin mRNA in oral cancer lines, correlated with FA supplementation. Moreover, although a much smaller increase was observed in caveolin mRNA in the normal control, a concomitant decrease was observed in hRFC transcription. This suggests a compensatory feedback mechanism may be functioning in normal cells to regulate folate intake, which appears to be non-functional or bypassed in the oral cancer cell lines examined. These results suggest one or more of these mechanisms could be explored for their potential to limit oral cancer growth.
Graduate & Professional Student Research Forum
Social Science
Poster Session A
UNLV Student Union Ballroom

Posters 41 – 44: Judging at 9:00 – 10:00am
41. Alexa Bejinariu, Department of Criminal Justice
42. Erik López, Department of Sociology
43. Carolyn Willis, School of Environmental Studies and Public Affairs
44. Stacy Newman, Lindsay Liddell and Katerina Chadliev, School of Law

10:00 – 10:30am Break

Posters 45 – 48: Judging at 10:30 – 11:30am
45. Dory Mizrachi, School of Environmental Studies and Public Affairs
46. Carrie Sampson, School of Environmental Studies and Public Affairs
47. Miliakeala Heen, School of Environmental Studies and Public Affairs
48. Logan Kennedy, Department of Criminal Justice
41. The Devil Made Me Do It: The Effects of Focus of Concern and Level of Authority on Perceptions of Domination in Death Penalty Cases
Alexa Bejinariu, Suparna Malempati and Joel D. Lieberman, Department of Criminal Justice

The research reports the effects of different factors influencing jurors’ perceptions of a “domination” mitigating factor. More specifically, we manipulated the focus of mental duress that a defendant experienced and the strength of the authority figure exerting domination over the defendant. A sample of mock jurors was presented with a capital case in which a defendant was found guilty. Participants were randomly assigned to groups that received mitigating factors in which the independent variables were manipulated. More specifically, they were told that the homicide was committed because the defendant was afraid that harm would come to either himself or others he was close to, if he did not commit the crime. In addition, the threatening agent exerting domination was identified as being either a low or high authority figure. The relationship between these contextual factors and relevant personality dimensions, including locus of control and authoritarianism, are explored.
Social Science and Law Poster Session A – Ballroom
9:15 – 9:30am

42. Measures of Acculturation and their Association to Dietary Behaviors among Hispanic Adults in the United States
Erik López, Takashi Yamashita and Christie Batson, Department of Sociology

Acculturation to mainstream American culture is associated with less healthful dietary behaviors among Hispanic immigrants. Hispanics in the U.S. face higher rates of chronic conditions such as obesity and diabetes compared to non-Hispanic whites (CDC 2012). Research demonstrates that healthy dietary behaviors, like greater consumption of fruits and vegetables, can offset and reverse many chronic diseases (Van Duyn et al. 2000). In order to better address racial health disparities it is critical to increase the understanding of the association between acculturation and dietary behavior. Little is known about which measure of acculturation is most related to dietary behaviors among Hispanics in the U.S. The purpose of this research is to examine which measure of acculturation is most associated with the consumption of fruits and vegetables among Hispanic adults in the U.S. A nationally representative sample of 23,903 Hispanic adults from the 2009-2010 National Health and Nutrition Examination Survey II (NHANES II) was analyzed using a multivariate ordinary least square regression model. Results show that greater use of English at home (p < 0.05) was associated with dietary behaviors. Language spoken at home may be a better indicator of acculturation than length of time in the U.S. because it represents the explicit achievement of a new skill (i.e., the acquisition of a new language) that can further increase assimilation. Language spoken at home may capture multiple aspects of acculturation, which result in changes in dietary behaviors. This knowledge can inform public health policies in order to better address health risks among Hispanics in the U.S.

Presentation: Pacific Sociological Association Conference, April 3
Sex tourism has become a global phenomenon in the tourism industry where individuals often travel for the purpose of sex and romance. The term “sex tourism” is a euphemism (Jeffers, 2010) often used to describe prostitution on a transnational level. Academic research and data on sex tourism are limited but highlights the idea that tourists (males and females) travel to exotic destinations in search of sex, romance, and long-term relationships. Sex tourism is the practice of participating in PAID sexual encounters with locals while on vacation. This practice is prevalent in regions where laws are absent, relaxed or not rigorously enforced. The purpose of this study was to explore and measure general attitudes, perceptions, and knowledge regarding sex tourism. Participants were asked to define sex tourism, compare it to other forms of sexual exploitation (prostitution and human trafficking), and estimate its prevalence. Scenarios were created that depicted examples of the different definitions of sex tourism from literature examine consensus. Finally, questions were asked about whether sex tourism is occurring in Las Vegas, one of the most likely sex tourism destinations in the US. Over 400 University of Nevada, Las Vegas undergraduate students were surveyed.

Presentation: American Society of Criminology, November 20, 2014
44. “Bonded Tenancy”- International Human Rights Framework  
Stacy Newman, Lindsay Liddell and Katerina Chadliev, School of Law

The international human rights framework is a valuable tool for jurists to advocate on behalf of others whose rights are being infringed. Treaties like the United Declaration of Human Rights and the Convention on the Elimination of Discrimination against Women provide language and principles advocates can use to protect the interest of the globe’s most valuable people. We traveled to New Delhi, India to implement these tools, document human rights deprivations, and learn about a complex and foreign legal system. Near the end of our research, we developed a new theoretical framework regarding housing called “Bonded Tenancy”.

Women in India have historically been oppressed and continue to struggle for equal treatment. Migrant workers in New Delhi and surrounding areas are extremely concerned with the state of their housing, which frequently does not meet the international human rights standards for adequate housing. Adequate housing is the most basic of fundamental rights, and the lack of adequate housing affects other fundamental human rights.

We used the concept of Bonded Tenancy to describe migrant workers’ day-to-day living situation, where housing difficulties disproportionately affects women. Bonded tenancy describes a system where landlord collusion and a lack of enforcement traps women in a cycle of poverty. Through field interviews with several migrant women and Indian law classes at the Nehru Jawaharlal University, we developed this concept and hope to use in an appeal to the Special Rapporteur of Housing from the United Nations to investigate housing in India further.

Presentation: Presentations in New Delhi, India at Nehru Jawaharlal University, January 9, 2015
45. Understanding the Civil Protection Order Process: The Relationship between Self-Help, the Court System, and Experiential Knowledge
Dory Mizrachi, Emily I. Troshynski, Elizabeth L. MacDowell, and Amy Magnus, School of Environmental Studies and Public Affairs

Recently, civil protection orders (PO) have been touted as a common legal initiative to help alleviate intimate partner violence. Previous quantitative and evaluative research on the overall effectiveness of POs presents mixed results and qualitative projects are rare. Here, we present preliminary findings of an institutional ethnography that critically analyzes the civil protection order process for self-represented litigants (SRLs). Observation sites include self-help centers assisting SRLs with PO applications and paperwork, courtrooms where SRLs requests for POs are heard, as well as textual analyses of tracking forms and official court filings. Analysis of qualitative data will highlight a disjuncture between experiential knowledge (what has happened to the SRLs) and what becomes known throughout the process thus formally (legally) documented. Findings suggest that the justice system is unprepared to serve victimized SRLs with diverse needs. Further research is required as well as appropriate training for court practitioners.

Presentation: American Society of Criminology (ASC), November 2014
Locally elected school boards in the United States are arguably the closest democratic link the public has to public education. Yet, school boards, particularly those in urban areas, oversee school districts that are increasingly diverse, complex, and often challenging in terms of performance. The purpose of this study is to examine how school boards address policies and practices for one of education’s most vulnerable populations’ English learners. Applying the conceptual framework of social construction theory for policy design, which assumes that policy is heavily influenced by the social construction of target groups, this multiple-case study includes data from 27 interviews, four years of school meeting minutes, and other archival documents from three sites located in the U.S. Mountain West Clark County School District, Salt Lake City School District, and Tucson Unified School District. Preliminary results found school boards are often pressured to address the education of English learners from outside groups, but are more concerned with how English learners negatively impact school districts, supporting policies and practices that are assimilatory and deficit-based. These findings suggest that while school boards are a significant democratic link, they are unwilling, and in some cases unable, to adequately address inequities faced by English learners.

An experiment was conducted to test the effects of evidence complexity and laboratory type on jurors’ perceptions of forensic evidence. The study specifically focused on three types of labs: public labs, private labs, and “corporate labs”. Public labs are managed by a federal, state, or local law enforcement agency, where evidence is usually analyzed internally at an agency. Private labs are those that have been formed as private businesses to provide services to federal, state, and local crime labs with overflow work. Corporate labs are managed by major retail corporations, and primarily service the needs of their store businesses, but also assist federal, state, and local agencies with overflow work and specialized cases. A national sample of mock jurors was presented with latent fingerprint evidence analyzed at 1 of the 3 types of crime labs. Evidence was presented in either a high-complexity (i.e., unfamiliar scientific language) or low-complexity (i.e., lay terms) format. Both lab type and evidence complexity were found to have significant effects on perceptions of evidence and verdict decisions. The findings are considered in the context of persuasion theories, and have implications in terms of developing best practice guidelines for forensic evidence presentation in court.
Policing Political Protest Events: Risks and Challenges
Logan Kennedy, Department of Criminal Justice

Political protests can be unpredictable, and they can lead to violence. As such, political protests represent significant challenges for police agencies. Part of the difficulty of policing these events is dealing with disgruntled participants, so tensions are high. Della Porta, Peterson, & Reiter (2006) stated that following the 1968 protest cycle, there was, “a return to the massive use of force, especially oriented toward temporary incapacitation” (pg 182). While use of force is sometimes necessary to maintain safety and order, evidence suggests that authoritarian approaches to policing crowds can instigate, rather than suppress violence. In many instance, police use of violence is correlated with the presence of injury or death. Accurately predicting the outcome of protests has the potential to help police to better prepare for these events. However, little research has been conducted to identify protest characteristics associated with violent outcomes. By using a binary logistic regression this study will examine protest factors, such as officer to protester ratio, type of protest, and protest location, to determine which are associated with violent outcomes. These findings may inform the development of political protest risk assessment instruments and assist police with planning and resource deployment.

Presentation: American Society of Criminology, November 20, 2014
Posters 49 – 53: Judging at 9:00 – 10:15am
49. Yulia Gavrilova, Department of Psychology
50. Levi Keach, Department of Anthropology
51. Chelcie Heaney, Department of Psychology
52. Ashley Lauzon, Department of Anthropology
53. Andrea Kayl, Department of Psychology

10:15 – 10:30am Break

Posters 54 – 57: Judging at 10:30 – 11:30am
54. Kimberly Schubert, Department of Psychology
55. AmyJane McAuley, Department of Psychology
56. Timothy McHale, Department of Anthropology
57. Laura Werner, Department Psychology
49. Effect of Engagement Strategy on Client’s Disclosure  
Yulia Gavrilova, Ashley Dowd, Travis Loughran, Ande Pascua, Regina Mitchell and Brad Donohue, Department of Psychology

Stigma towards psychotherapy and disclosure of mental health symptoms is a challenge faced by many researchers and practitioners. This has been particularly problematic in the athletic population. Research suggests that student-athletes experience high levels of mental health symptoms and tend to underutilize mental health programs. Factors that may account for student-athletes service underutilization include the denial of emotional problems, time, social stigma, higher sensitivity to the perceptions of others, and therapists’ limited familiarity with the athletic culture. The purpose of this study was to assess the effect of two engagement strategies on student-athlete’s disclosure of the factors that interfere with their sport performance, and their mental health symptoms. The engagement as usual condition included traditional research engagement techniques and the enhanced engagement condition included components that have been shown to influence people to open up more, including normalizing, by reviewing facts from the literature, therapist’s self-disclosure, and empathy. It was hypothesized that participants in the enhanced engagement condition would disclose more information than participants in the traditional engagement condition. Participants (79 student-athletes from 20 sports; Male = 39, Female = 40; 18-24 years) were randomly assigned to one of two engagement conditions and completed the Sport Interference Checklist (SIC) and Symptom Checklist-90-Revised (SCL-90-R). Results showed no significant differences between conditions on the SCL-90-R Global Severity Scale. However, a significant difference was found in the athletes’ report of dysfunctional thoughts and stress on the SIC, suggesting that enhanced engagement strategy may facilitate greater disclosure of factors that interfere with athletic performance.

Presentation: 95th Annual Western Psychological Association in Las Vegas, NV, April 1-May 3, 2015
Today, we build most of our enduring artifacts of plastic. In the past, our enduring artifacts have been variously constructed of metals, ceramics, bones, and stones. Approximately 9,500 years ago the people of Krittou Marottou Ais Giorkis (“Ais Giorkis”) a Cypro-Pre-Pottery Neolithic-B (CPPNB) period site located in the foothills of Cyprus’s Troodos Mountains’ used chert stone extensively for their artifacts. The practice of flint knapping, the construction of stone artifacts by chipping stone, is a reductive process in which the target material is removed from a stone core, once no more material can reliably be removed the core is said to be exhausted. Almost two decades of research has produced a chipped stone record of about 300,000 pieces, including more than 2,460 cores. Beginning in 2014, these data were coded within a GIS database. This poster examines the spatial distribution of cores across Ais Giorkis for patterns between flake versus blade cores, exhausted versus non-exhausted cores, and cores of locally abundant materials versus “exotic” materials. Plotting the locations of these cores provides useful insight into the production practices and spatial use patterns of the people who once used this site.
51. GABAB Ligand Dose-Dependent Changes in Spatial Learning and Hippocampal GABAergic and Plasticity Proteins
Chelcie F. Heaney, Monica M. Bolton, Andrew S. Murtishaw, Michael A. Langhardt and Jefferson W. Kinney, Department of Psychology

The inhibitory neurotransmitter receptor, GABAB, plays a role in regulating cognitive processes. However, research has yielded mixed results regarding the extent to which altered GABAB receptor function impairs or enhances learning and memory performance. In order to better characterize the role of the GABAB receptor on behavior, we compared the effect of two distinct doses of the GABAB drugs baclofen and phaclofen on the performance of rats in the Morris water maze, a spatial learning task. High doses of these drugs impaired learning, whereas lower doses were slightly beneficial. We also analyzed brain tissue for alterations to specific targets in order to link any changes to performance in the behavioral task. Our data indicate that the concentrations associated with beneficial effects on learning and memory were related to changes in specific neural markers. Patients with Alzheimer’s disease or schizophrenia exhibit impaired spatial learning and memory, as well as changes to this particular receptor. Therefore, our data could indicate a potential range of appropriate function for this receptor that is associated with unimpaired spatial learning.

Presentations: American Chemical Society Southern Nevada Local Section Annual Poster Exhibition and Competition. Las Vegas, NV, November 2014
24th Neuropharmacology Conference 2014
GABAergic Signaling in Health and Disease. Washington, DC, November 2014
Society for Neuroscience. Washington, DC, November 2014
Ritual performance and those who participated in these events is a growing area of interest. Artifacts recovered from ritual areas can inform on activities that took place in and around the feature and provide information on those who participated in such events. During the 2013 excavations at the Harris Site (LA 1867), located in southwestern New Mexico, a ritual feasting pit was excavated to the south of a large communal structure, which indicates these two features may have been related in some manner. This pit feature yielded a number of artifacts including two palettes, one whole and one broken, and numerous ritually smashed corrugated and decorated vessels. Analysis focused on tool material type, the quality of manufacture and stylistic execution on tools and ceramics, and the manner in which these artifacts were used. The palettes and reconstructed vessels were also compared to other palettes and vessels from other areas of the site to potentially link this feature with specific households or corporate groups. Data recovered from these artifacts informed on questions related to the functional purposes of these artifacts, ritualistic performance, and the identity of those individuals who made and used these objects.

Presentation: 18th Biennial Mogollon Conference, October 9-11, 2014
53. The Dynamics of Infants’ Interest in Female and Male Faces: A Recurrence Quantification Analysis
Andrea Kayl and Jennifer L. Rennels, Department of Psychology

Infants with female primary caregivers exhibit visual preferences for females over males when viewing familiar races (Quinn, et al., 2002; Quinn et al., 2008). Our research extends upon these findings to examine the malleability of these preferences. When 3-4- and 9-10-month-olds saw male and female face pairs that varied in attractiveness and race across pairs, they responded differently depending on their age and the manner in which these pairings were displayed (i.e., face-pair race randomized or blocked). Infants showed an expected preference for familiar race females when the attractiveness and race of face pairs varied randomly across trials. When infants saw face-pairs blocked by race, however, a complex interaction occurred involving infant age, face-pair attractiveness level, and display order within a block. These findings suggest the context in which stimuli are displayed impacts infants’ behavior, but it is unclear how looking changes across trials. The purpose of the current investigation was to examine the infant looking time data from the aforementioned study using recurrence quantification analysis (RQA). RQA is a nonlinear technique that allows for the discovery of patterns in data (Webber & Zbilut, 2005). We found that contextual variables seemed to have a greater influence on 3-4-month-olds than 9-10-month-olds’ looking behavior as indicated by more significant changes in their patterns of looking. Early preferences are an initial step in discovering how attention to others impacts categorical knowledge and learning of social groups, so understanding these contextual effects is important.

Presentation: Society for Research in Child Development Special Topic Meeting: Developmental Methodology, September 2014
Illicit drug use by caregivers has consistently been indicated to influence child maltreatment potential. However, investigators have not assessed the relative contribution of particular drugs on child maltreatment potential utilizing prospectively recruited carefully characterized samples and psychometrically validated assessment measures and with collateral reports in real-world settings. The current study compares the extent to which illicit hard drug use and marijuana use predict child maltreatment potential in a sample of mothers referred to behavioral treatment by Child Protective Services. Reports of illicit drug use by participating mothers were approximately 3 times higher than reports of their drug use by their family and friends, and drug use reports by mothers were more consistent with urinalysis testing than their significant others. Regression analyses showed that the mothers’ hard drug use reports (illicit drugs other than marijuana) predicted their potential to maltreat their children irrespective of social desirability, whereas reports of marijuana use by mothers were marginally predictive of their child maltreatment potential (p = .05), but only when their social desirability was controlled. Reports of the mothers’ hard drug and marijuana use by significant others were not predictive of the mothers’ child maltreatment potential. The results of this study suggest professionals need to consider hard drug use, and to a lesser extent, marijuana use, of caregivers in the protection of children, paying particular attention to self-reported use. Future research recommendations are discussed in light of the results.
55. **It's all about the Timing: Investigating the Self-Report of Math Anxiety**  
Amy J. McAuley, Alex M. Moore and Mark H. Ashcraft, Department of Psychology

This study examined the nature of self-report as measured by the Abbreviated Math Anxiety Scale (AMAS). We manipulated the timing of self-report, either before or after task completion. Results show typical reaction time effects in relation to math anxiety (i.e., slower high math anxious responding) when self-report was collected before the experimental task, but not after. Also, the interrelations between self-report, math achievement, and task performance depended on the report timing and the sub-factor of the AMAS. Principles from the Accessibility Model of Emotional Self-report are discussed to characterize the nature of self-report results found.

Presentation: Canadian Society for Brain Behavior and Cognitive Science, Toronto, ON  
July 3, 2014
56. Steroid Hormone Change in Response to Competition in Juvenile Boys
Timothy McHale, Peter Gray, and David Zava, Department of Anthropology

We examined potential changes in salivary testosterone, cortisol, DHEA, and androstenedione in boys in response to soccer practice and soccer match play. To our knowledge, this study is the first to explore the impacts of athletic competition on salivary steroid hormone change in juvenile boy athletes. Soccer players from three different teams provided saliva samples before and after soccer practice and before and after soccer match play in Las Vegas, Nevada. All participants were aged 8 – 10 years. A paired-samples t-test and Wilcox signed rank sum test were applied to analyze change in hormone concentration before and after practice and before and after match play. A Friedman’s ANOVA was used to test the effects of within-versus between-group competition on steroid hormone change. Results revealed a statistically significant increase in boys’ DHEA concentrations during both match play and soccer practice. Androstenedione significantly increased during match play and approached significance during soccer practice (p = 0.056). Cortisol did not exhibit a significant increase during either condition. However, when the percent of hormone change was utilized to compare within-versus between group differences, cortisol was the only hormone that significantly increased more during the soccer match (out-group) condition in comparison to the practice (in-group) condition. No statistical analysis was available for testosterone since all but two samples were below the sensitivity of the assay. These data suggest that adrenal steroid hormone release is sensitive to competition and capable of rapid changes among juvenile boys. The adaptive significance of these findings is discussed.
57. **Cognitive Depletion: Exploring the Consequences of Having Too Many Options**  
Laura Werner, Department of Psychology

Prior research suggests that cognitive resources are undermined when a decision-maker must choose between multiple options, a phenomenon known as cognitive depletion. This study examined one possible mitigating factor for cognitive depletion, working memory capacity. To test this idea, participants were screened for working memory capacity prior to completing a decision-making task that required them to choose between a few or many every day products. Immediately following the decision-making task, all participants completed the color-word Stroop task. Any depletion as a result of prior decision-making was expected to result in increased interference on the subsequent Stroop task. We hypothesized that (1) the high working memory capacity group would show less Stroop interference overall; (2) the simple option condition would result in less interference; and (3) working memory and number of options would interact such that the low working memory participants would be most adversely affected in the complex condition compared with the high working memory participants who are expected to be relatively unaffected by number of options. In support of our first hypotheses, we found that those with a larger working memory capacity were quicker in naming the color of color words in the Stroop task, thereby implying they experienced less interference than their counterparts. However contrary to our predictions, we found that an increase in the complexity of products did not differentially affect Stroop performance for high and low working memory participants.

Presentation: North Carolina Cognition Group: Durham, NC- 2014
Graduate & Professional Student Research Forum  
Social Science  
Poster Session C  
UNLV Student Union Ballroom

Posters 58 – 61: Judging at 9:00 – 10:00am  
58. Kathleen Larson, Department of Psychology  
59. Bern Lee, Department of Psychology  
60. Caryn Tegtmeyer, Department of Anthropology  
61. David Weintraub, Department Psychology

10:00 – 10:30am Break

Posters 62 – 65: Judging at 10:30 – 11:30am  
62. Abigail Mayfield, Department of Psychology  
63. Mark Toussaint, Department of Anthropology  
64. Mandy Walsh, Department of Psychology  
65. R. Shane Westfall, Department Psychology
58. The Mental Organization of Permanent and Situational Character Attributes
Kathleen Larson and David Copeland, Department of Psychology

The integration of multiple concepts has been examined in the context of the fan effect, which is the finding that an increase in the number of learned associations for a concept can result in an increase in retrieval times and error rates (Anderson, 1974). However, there is typically not a fan effect when people are able to organize the related information into a single integrated situation model (Radvansky & Zacks, 1991). The goal of this project was to investigate whether readers would integrate descriptions of characters into one coherent mental representation. Specifically, the current study examined whether situational and permanent attributes (either external or internal) from multiple sentences would be stored separately or integrated. Consistent with situation model theory, all experiments showed evidence of a differential fan effect; however, in some cases, integration did not occur in patterns that were predicted. For example, while complementary external attributes that could occur simultaneously were integrated (e.g., brown hair, light skin, and overweight), people also integrated external attributes that conflicted (e.g., wearing boots, sandals, and high heels). Alternative explanations for these patterns of results are discussed.

Presentation: Psychonomic Society Annual Convention, Long Beach, California in November 2014.
Objective: Individuals with schizophrenia display neurocognitive deficits including deficits in reward learning; a dopamine mediated activity. However, studies of reward learning are limited because participants are often evaluated when treated with medications that are strong dopamine antagonists that would be expected to negatively impact reward learning performance. The current study addresses this matter in medicated and drug free individuals diagnosed with schizophrenia.

Method: Participants included a schizophrenia group stabilized on haloperidol (N = 27) and a normal control group (N = 17). Both groups were evaluated with the WCST on two occasions separated by three weeks. After the initial assessment, 13 individuals with SZ were gradually withdrawn from haloperidol in a double blind, and were drug free at the time of the second evaluation. Responses on the first four cards of the WCST were examined to assess reward learning. Data were archival and all study procedures were approved by the IRB at the time of data collection. Participants with SZ provided informed consent prior to completing any study procedures and were inpatients throughout the study.

Results: Mixed model ANOVA examining the group (3) by assessment (2) by WCST card (4) effects indicated a significant group by card interaction effect, such that the two schizophrenia groups had lower performance across time intervals compared to controls.

Conclusion: Results suggest that reinforcement learning as measured by the WCST was not affected by D2 receptor antagonism. More sophisticated neuroscience based approaches to assessment of reward learning might produce different findings, and so should be investigated in future studies.
60. The Elite’s War: Violence and Social Coercion at Chaco Canyon and Casas Grandes (AD 900-1400)
Caryn Tegtmeyer, Department of Anthropology

The role of elite individuals in endemic warfare and violent coercion at Chaco Canyon (AD 900-1150) Casas Grandes (AD 1200-1400) has been an understudied area of research in the American Southwest. These large, and possibly sequential sites, were served as both ceremonial and political centers that experienced a significant growth of power and ultimately declined, and in the case of Casas Grandes, catastrophically. Both sites experienced significant population increase, material and architectural complexity, as well as an influx of migrants during the peak of their power. Despite this, there is evidence that each experiences an increase in strife, inequality and violence. Chaco Canyon, while appearing relatively peaceful, shows evidence of social coercion by a handful of elite individuals through overtly violent means, while Casas Grandes has always been considered a very violent place, experiencing periods of endemic warfare throughout its occupation. Profiles of morbidity, mortality, mortuary context and violence-related trauma were collected and compared for both of these regions and an interesting pattern emerged. This pattern suggests that while male individuals suffered from trauma and poor health, that women and children also suffered, and in some cases, were likely targeted by these elite individuals for violence and sacrifice. The role of women and children in periods of violence has rarely been speculated and this study proposes that despite not being involved in direct combat, they still suffered during periods of war.

61. **Effects of Speech Rate Context on Speech Comprehension**  
David Weintraub and Joel Snyder, Department of Psychology

It is well known that perception of small units of speech is influenced by the rate of pre- and post-speech. This effect occurs on multiple timescales. At long timescales, in particular, perception of function words (e.g., or, the) is sensitive to the average rate of a conversation-length period of speech (Baese-Berk et al., 2014). The purpose of the current study is to examine whether larger units of speech, namely sentences, are similarly sensitive to the average rate of speech at long timescales. Sentence rate was manipulated using time compression. Sentences in the fast context block were compressed to 25%, 30%, or 35% of their original duration. Sentences in the slow context block were compressed to 35%, 90%, and 110% of their original duration. Sentence comprehension decreased as a function of increasing compression rate. More importantly, comprehension was higher for 35%-compressed sentences within the fast context block compared to the same sentences in the slow context block. This effect did not occur immediately, instead emerging after several minutes of exposure to the average speech rate within a block. The results of this study suggest that comprehension of large units of speech (i.e., sentences) is affected by the average rate of a conversation-length period of speech. These results may reflect a contrastive context effect on the comprehension of speech, such that sentences spoken at relatively slow rates, compared to the average rate of sentences within a long-term context, are easier to understand.

Presentation: ARO MidWinter Meeting 2015
62. **Improvement in Executive Function Following Traumatic Brain Injury (TBI) in Children**  
Abigail Mayfield, Anna Reyes, Joan Mayfield and Daniel Allen, Department of Psychology

**Objective:** Executive function deficits are common following traumatic brain injury (TBI) in children. Some reports indicate that executive function improves following TBI, although factors that contribute to recovery continue to be investigated. In this study we examine improvement in performance on the Delis’ Kaplan Executive Function System (DKEFS) Tower task, a measure of planning and problem solving abilities, at two time points following TBI to examine magnitude of improvement and associated factors.

**Method:** Participant included 32 children with TBI (Age 14.52, SD = 2.73 % male = 59.4). Based on Glasgow coma scale scores most children sustained severe brain injuries (GCS = 6.27, N = 26). Initial evaluation occurred an average of 27.4 days after injury upon admission to a rehabilitation program, and then again 57.7 days later when discharged from the program.

**Results:** Repeated measure ANOVA indicated significant improvement in DKEFS Tower performance (F = 12.872, P >001). Single sample t-tests indicated the groups performed significantly poorer than the standard sample at intake (p < .002) with no significant difference at discharge. Correlations between injury and recovery related variable with DKEFS tower performance were not significant, although Nonverbal IQ and Nonverbal Memory abilities significantly correlated with DKEFS performance at intake.

**Conclusions:** Finding suggest that improvement in executive function does occur in response to rehabilitation, although the current study was not capable of examining how practice effects may influence improvement in DKEFS scores. Future research may examine this matter further and investigate whether similar improvements occur in other areas of executive function.

Presentation: National Academy of Neuropsychology November 2014
Tell Abraq is an archaeological site from the Arabian Bronze Age, located near the Persian Gulf Coast of the modern-day country of the United Arab Emirates. A sealed, two-chamber mud-brick tomb on site, in use from approximately 2200 – 2000 BC, yielded a 1.4-meter-thick matrix of commingled human remains, soil, and artifacts, representing a MNI of 403 individuals, of which nearly three quarters are adults. Although the remains are fragmentary, they still offer rich insights into the biocultural interactions of Bronze Age society in this population. The aim of this study was to categorize changes at the sites of major muscle attachments on the humerus, and to look for intersections of musculoskeletal stress marker category, biological sex, and burial location within the tomb at Tell Abraq. The presence or absence of specific patterns in these intersections helps to shed light on the degree of social stratification represented in the bodies of those buried in the tomb, and possibly on Bronze Age formulations of gender at this site.

Presentation pending: Society for American Archaeology, April 18, 2015
The purpose of this study was to explore the influence of gender on suspicion towards claims made during courtship communications. It was hypothesized that participants would be more suspicious of claims made about reproductive relevant traits. To test the hypothesis, participants read a total of eight scenarios describing traits relevant to female reproduction (wealth, commitment, and child interest), traits relevant to male reproduction (physical beauty, youth, and sexual availability), and traits neutral to both genders (stargazing and game playing). After each scenario, participants indicated their suspiciousness about the veracity of the communication on five scales. As predicted, both men and women believed the neutral claim scenarios more than claims about reproductively significant traits. Women were more suspicious of communications about information highly relevant to female reproduction than of either male relevant or neutral communications, $F = 5.83$, $p < .05$. Similarly, men were more suspicious of communications highly relevant to male reproduction than of either female relevant or neutral communications, $F = 7.31$, $p < .05$. Further, consistent with the main hypothesis, these gender effects became more pronounced with high mate-value participants, $F = 6.85$, $p < .05$. High mate-value females were even more suspicious of information relevant to females than low mate-value females. The same results were found with males. These findings are important because they suggest suspicion may play a role in how mate-value influences the choice of reproductive strategy.
65. The Effect of Perceived Attractiveness on Endorsement of the Just World Hypothesis
R. Shane Westfall and Murray Millar, Department of Psychology

Just-world hypothesis revolves around two key elements: that good people are rewarded and that bad people are punished. This important construct plays a significant role both in determining an individuals’ view of the world and influencing their subjective experiences within that world. Previous research has found that endorsement of the just-world hypothesis varies depending upon personality factors such as gender, wealth, and race. Typically individuals privileged by society tend to be stronger endorsers. Extending on work exploring physical attractiveness stereotypes, the current study aims to add to this body of research by examining the effect of perceived physical attractiveness of the self on endorsement of this belief. Participants completed a measure of perceived physical attractiveness as well as a measure of endorsement of the just-world hypothesis. Consistent with our predictions, our findings suggest a statistically significant relationship between physical attractiveness and belief in a just-world.

Graduate & Professional Student Research Forum

Education
Poster Session A
UNLV Student Union Ballroom

Posters 66 – 69: Judging at 8:30 – 9:30am
66. Pamela Juniel, Department of Educational & Clinical Studies
67. Cynthia Clark, Department of Teaching & Learning
68. Rachel Part, Department of Educational Psychology & Higher Education
69. Jennifer Guttman, Department of Educational Psychology & Higher Education

Posters 70 – 73: Judging at 9:30 – 10:30am
70. Cathrine Maiorca, Department of Teaching & Learning
71. Pamela Maher, Department of Teaching & Learning
72. Schetema Nealy, Department of Chemistry
73. Mary Simmons, Department of Educational & Clinical Studies

10:30 – 10:45am Break

Posters 74 – 76: Judging at 10:45 – 11:30am
74. Abeera Rehmat, Department of Teaching & Learning
75. Megan Cogliano, Department of Educational Psychology & Higher Education
76. Zachary Sanderson, Department of Teaching & Learning
66. **Evidence-Based Practices: School District Considerations for the Professional Development of General and Special Educators**  
Pamela Juniel, Educational & Clinical Studies

Evidence-based practice standards have been present in the fields of medicine, psychology, and sociology for the past 20 years (Eddy, 2005). In education, there have been issues bridging the research-to-practice gap using evidence-based practices in special and general education settings (Cook & Odom, 2013; Gersten, Vaughn, Deschler, & Schiller, 1997). The dissemination, usage, adherence, sustainability, and fostering evidence-based practices via professional development at the district and state levels are a constant challenge (Cook, 2013; Klinger, Boardman, & McMaster, 2013).

The Council for Exceptional Children recently published the Standards for Evidence-based Practices in Special Education (Cook, Buysse, Klinger, Landrum, McWilliam, Tankersly, & Test, 2014). Currently, no data exists for researchers, practitioners, or teachers to determine which components of evidence-based practices are considered in how districts plan and design school-based professional development for general and special educators. This presentation describes a study conducted to provide empirical data on present school district considerations of the standards prescribed by CEC (2014).

Using the Standards for Evidence-based Practices in Special Education prescribed by the Council for Exceptional Children, (Cook, et. al, 2014), a survey was created and distributed to 736 professional development coordinators in small, medium, and large school districts across the United States. This survey will determine which quality indicators and classifications of evidence-based practices were considered when planning school-based professional development for general and special educators. The results of this study will provide initial empirical data regarding which aspects of evidence-based practices are prevalent and important to school districts at the national level.

Council for Exceptional Children - TED Kaleidoscope (Teacher Education Division), April 10, 2015  
Pending: Council for Exceptional Children - DLD (Division for Learning Disabilities) April 9, 2015
67. Teacher Candidate Technology Integration: For Student Learning or Instruction?
Cynthia Clark and Shaoan Zhang, Department of Teaching & Learning

Transfer of instructional technology knowledge for student-centered learning by teacher candidates is investigated in this study. Using the transfer of learning theoretical framework, a mixed methods research design was employed to investigate whether secondary teacher candidates were able to transfer the instructional technology knowledge for student learning to their teaching in K-12 classrooms during their field experience. Data sources were Instructional Technology and Disposition surveys, classroom observations, lesson plans, and focus group interviews. It was observed that candidates were more prone to demonstrate near transfer uses of instructional technology (teacher-centered) over far transfer uses of instructional technology (student-centered) in lesson planning and teaching. The implications for teacher education programs are discussed.

68. I See You: Comparing the Effect of Asynchronous and Synchronous Video versus Text Based Communication in an Online Teacher Education Course
Rachel Part, Joe N. Crank, Rebecca Nathanson and Brittnie Watkins, Department of Educational Psychology and Higher Education

The purpose of this study was to increase the detection of non-comprehension in children with learning disabilities as a means of enhancing their communicative competence and to provide valuable information to school psychologists. It was hypothesized that children who received comprehension monitoring training would respond correctly to questions more often than children who received rephrase instruction or motivating instructions. Children who received comprehension monitoring training were more likely to answer interview questions correctly in comparison to children that received rephrase instruction or motivating instructions.

Presentation: NASP, February 19, 2015
69. A Bayesian Scale to Measure the Big-5 Personality Traits
Jennifer S. Guttman, W. Paul Jones, Hannah Berry, Isabelle Sanchez, Scott A. Loe and Tara Raines, Department of Educational Psychology & Higher Learning

The Mini-IPIP is a shortened version of the IPIP-50 measure of the Big-5 personality traits. Simulation results with an IPIP-50 dataset suggested that Bayesian adaptive scaling could enhance the Mini-IPIP without a large increase in required items. This study uses an instrument specifically designed for computer adaptive Bayesian scaling (CABS-IPIP) producing scores of high, medium, or low on each of the Big-5 traits. The purpose of this study was to examine correspondence between trait categories assigned using CABS-IPIP and IPIP-50 assignments, examine whether CABS-IPIP results have relationships with vocational personality traits in other studies, and determine the number of items required with CABS-IPIP in real-life administration.

Presentation: Association for Psychological Science May 22-25, 2014
Science, technology, engineering and mathematics (STEM) are becoming more prevalent as our society becomes more advanced. The U.S. Bureau of Labor and Statistics reported that in 2018 over 8.5 million jobs will be in STEM fields and 80% of the jobs in the future will require technology. Because our society is so dependent on STEM fields it is important that all students receive an authentic education that includes integrated STEM.

Current trends in education are requiring teachers to use a more integrated approach to teaching mathematics. Despite this trend most teachers are not aware of the benefits of using integrated STEM education to teach mathematics. The purpose of the presentation is to provide teachers with research-based practices that demonstrate how integrated STEM can be used to teach mathematics. A general description of integrated STEM education and the different ways that it can be implemented in the mathematics classroom will be provided, as well as examples of how integrated STEM education can make mathematics learning more relevant and connected to students’ lives.
71. **Two Simulation Tools to Promote Learning in Science**
Pamela A. Maher, Janelle M. Bailey, P. G. Schrader and James Ormord, Department of Teaching & Learning

This study examines two simulation tools used in science education to answer the question, “Can simulations promote learning in science?” We compare the affordances of virtual reality headsets (VRH) with affordances offered in a fulldome planetarium. Each tool provides users with an interactive representation of a programmed environment. VRH has the ability to provide users with an interactive experience that conveys spatial relationships. VRH is used on an individual basis and until recently for gaming. The uses of the VRH are relatively unknown in traditional teaching and learning. Fulldome planetarium technology has been in use since the 20th century and offers an environment that affords multiple participants a similar experience. Both tools afford and are constrained by features inherent to their construction. We analyze each tool and its capacity for science content delivery. The research investigates how these tools facilitate development of, access to, and engagement in science concepts.

Presentation: American Association of Physics Teachers Winter Meeting, San Diego, California. January 4-6, 2015
72. **Design, Development, and Delivery of the Nevada GEAR UP STEM Summer Institute**  
Schetema Nealy, Kristoffer Carroll, Heather Skaza, Erica Marti, Eshani Gandhi, Mehmet Dulger, Daniel Gerrity, Travis Olson, PG Schrader and MaryKay Orgill, Department of Chemistry

The Nevada State Gaining Early Awareness and Readiness for Undergraduate Programs (NV GEAR UP) project is a federally-funded, statewide project with a goal of increasing the number of underrepresented, low-income students who enter college. To meet this goal, NV GEAR UP supports middle school students’ learning in science, technology, engineering, and mathematics (STEM) subjects through services such as tutoring, STEM activities, academic advising, and professional development opportunities for their teachers. The University of Nevada, Las Vegas (UNLV) STEM leadership team has been tasked with providing NV GEAR UP middle school teachers with professional development opportunities, one of which is the 2014 GEAR UP STEM Summer Institute (STEM SI). The STEM SI aims to authentically integrate the Nevada Academic Content Standards in science, technology, engineering design, and mathematics by engaging the teachers in an interesting storyline as they attempt to answer the guiding question “What would an alien eat?” In this poster presentation, we will discuss the design, development, delivery, and initial evaluation of the SI.

Presentation: 249th ACS National Meeting & Exposition, March 22
73. **Teaching English as a Second Language: Not just a want, a Nevada NEEDs!**
Mary T. Simmons, Department of Education & Clinical Studies

The purpose of this research is to evaluate the number of students identified as English language learners in the state of Nevada in comparison to the number of licensed Nevada teachers who have been issued the Teaching English as a Second Language license endorsement. This has been done by examining data provided by the Nevada Department of Education including both teacher licensure and student population.

All educators have an important role to play in supporting student’s academic language development. Educators who are cognizant of the role of language while teaching and are equipped with significant tools to support teaching English Language Learners, empower those students toward academic success. Academic language is vital to the success of all students in the classroom. All educators should be engaged in teaching content including the use of academic language. The state of Nevada English Language Learner student population is relatively high in comparison to other states. This alone constitutes the need for the promotion of or the mandate for, the Teaching English as a Second Language license endorsement for every teacher.

Cultivating effective teachers of English Language Learners is a crucial step toward the promotion of consistent use of academic language in the classroom. This progressive movement will greatly influence the state of Nevada English Language Learning population producing additional data and direct future research on the importance of the use of academic language when teaching English Language Learners.
74. The Earlier the Better: Teacher Beliefs about Design, Engineering, and Technology Instruction
Abeera P. Rehmat, Marissa C. Owens and Janelle M. Bailey, Department of Teaching & Learning

This exploratory, qualitative, multiple-case study was conducted with high school STEM teachers. This study addresses STEM teacher beliefs about the instruction of design, engineering, and technology. It further explores the impact teaching experience has on beliefs in regards to design, engineering, and technology.
75. Does Prior Knowledge Modify the Testing Effect?  
Megan Cogliano and CarolAnne Kardash, Department of Educational Psychology & Higher Education

We examined whether the practice testing effect is moderated by prior knowledge. Participants were 25 undergraduates. We predicted performance would differ based on students’ prior knowledge of the topics and whether items were practice quizzed prior to chapter examinations. We anticipated practice testing would be especially beneficial for topics for which students possessed low compared to high prior knowledge. Students performed better on chapter content for which they possessed high prior knowledge, and on items that were practice quizzed in comparison to items that were non-quizzed. Prior knowledge did not moderate the testing effect. Findings indicate that practice testing may be robust enough that individual differences do not affect the benefits of practice testing for classroom learning and retention.

Presentation pending: AERA, April 2015
76. **Designing, Analyzing, Modifying, and Supplementing an Inclusive English Language Arts Curriculum for Gender-and-Culture-Diverse Student Populations**

Zachary Sanderson, Department of Teaching & Learning

Zachary Sanderson is a graduate student in the College of Education in conjunction with Teach for America. The Human Rights Campaign Foundation in partnership with the National Education Association and the American Counseling Association present Time To THRIVE, the 2nd annual national conference to promote safety, inclusion and well-being for lesbian, gay, bisexual, transgender, and queer (LGBTQ) youth. LGBTQ youth asymmetrically face challenges that their heterosexual peers do not: family rejection, bullying, crises of identity, societal ostracization, and daily concern for safety. By engaging an expansive audience of youth-serving professionals, including educators, mental health providers, physicians, religious leaders, athletic coaches, and youth development personnel Time To THRIVE intends to create a thriving LGBTQ youth population.

Over the course of three days, the conference hosted over 50 workshops (in addition to guest lectures and speakers) that served not only as research for academic study, but also as professional development for educators. Research conducted at the conference will contribute to the Master’s Culminating Experience, “Designing, Analyzing, Modifying, and Supplementing an Inclusive English Language Arts Curriculum for Gender-and-Culture-Diverse Student Populations” as well as professional development for the Clark County School District (CCSD), the Gay, Lesbian and Straight Education Network, (GLSEN), Teach for America (TfA), and Clark County Education Association (CCEA). This Master’s Culminating Experience provides a comprehensive, holistic opportunity for English Language Arts Educators to build awareness and cultural competency, learn current and emerging best practices, and gather resources from leading experts and national organizations in the field.
Graduate & Professional Student Research Forum  
Fine Arts  
Poster Session A  
UNLV Student Union Ballroom

Posters 77 – 81: Judging at 8:45 – 10:00am

77. Melissa Avelar and Katherine Slaughter, School of Architecture
78. Audrey Barcio, Department of Art
79. Wendy Chambers, Department of Art
80. Kyle Fischer, School of Architecture
81. Maureen Halligan, Department of Art

10:00 – 10:30am Break

Posters 82 – 85: Judging at 10:30 – 11:45am

82. Elizabeth Johnson, Department of Art
83. Alfred Pulido, School of Architecture
84. Lisa Rock, Department of Art
85. Shelbi Schroeder, Department of Art
77. Master's of Architecture Concentration in Educational Facilities
Katherine Slaughter, Jesus Diaz and Melissa Avelar, School of Architecture

Education is a process that is constantly changing and evolving. In today’s society, that change has become more rapid as technology starts to enter its way into daily lives and even throughout the school structure. With the advances of technology, there has become a need to adapt to those changes within the classroom as newer teaching trends have started to arise from the incorporation of technology. With that being said, how have these new teaching trends changed the way the physical environment of the classroom is transforming? From project based learning, to 21st century skills, to flipped classrooms and beyond, these new trends and ideas have reshaped the existing ideas of space as classroom sizes are changing, the number of students, the tools they are using, and even the sounds they are making in classrooms that relying on a singular model may not be as effective as it used to. Our goal is to examine these new teaching trends, their pedagogies, and the tools they use to begin to predict what a classroom may look like in the next two decades. As graduate architecture students, we feel there is a need to reexamine the traditional model of classrooms and understand that technological advancement may now be informing how classrooms are designed. Through extensive research, we have compiled an Ed-Spec book for the classrooms of the future.
78. **Infinite Reflection**  
Audrey Barcio, Department of Art

Barcio investigates the theme of infinity through art. Viewers encounter their own infinite reflection with two double triangle mirrors hung on opposite walls. The mirrors offer an ongoing illusion of reflection with repeated frames extending into space. Immersed in the middle, the natural gesture of the selfie ensues, followed with a post to the Internet, repeating infinite interaction around the world.
79. **Transformations of Flesh in Oil Paint**  
Wendy Chambers, Department of Art

The funding I received through GPSA has enabled me to purchase the fundamental oil painting materials required for my practice as an MFA in the Art Department. These materials include specific colors and quantities of oil paint that allow me to create the desired paintings without limitation. My goal is to create large scale realistic paintings that acknowledge the transformations that the human body and flesh undergoes as it ages and decays. This concept is expressed through the use of oil paint, which lends itself to the rendering of flesh as it successfully mimics and emphasizes the nature of corporeal subjects. Oil paint is exceptionally well suited to building layers of paint, which is crucial to my practice of elevating the layers, folds, and forms of flesh.

The large scale of the paintings “reaching 6ft in length or width” is essential to emphasizing both the materiality of the body and of the oil paint. I feel that working at this size is fundamental to creating powerful paintings that will leave the most lasting effect on the viewer. My paintings result in images that are confrontational, yet seduce the eye with subtle and sophisticated color relationships. Through this practice, I create paintings that acknowledge the transformations of the corporeal self.
As more and more jurisdictions begin to approve commercial casino gambling, there becomes a need to better understand their effects on the local economy. Casinos can undoubtedly supply jobs and bring in out of state revenues through tourism, but often times do so at the expense of local business and infrastructure. For example, casinos generally face inward, keeping pedestrian activity off the street and on the casino floor which in turn results in barren city streets. They can also cannibalize local business, operating at or below cost to attract guests in hopes that they’ll spend money gambling. While casinos can bring much to a city, they can take just as much away. In the end, the actual contribution from a casino lies in how well it integrates with the local community.

Following a brief literature review, this study applies urban theories to two different casino types, urban and suburban. The size and program for each model were determined through analyzing 56 different casinos in Las Vegas. Each model was placed on a potential site and then run through a series of alterations. Each of the alteration were then critiqued and presented further design solutions. The goal of this simulation was to better understand the impact that casinos have on the built environment. Although no single solution could be determined, the study resulted in a number of best practices that should be considered in the future development of a community integrated resort.
81. **Grounds for Abstraction: Large Scale Abstractions on Development**  
Maureen Halligan, Department of Art

My research project is a fine arts exploration of large-scale paintings using colored gesso (ground) and vinyl paint that will enhance my understanding of the qualities of these materials, as well as reinforcing my discussion about urban sprawl, the Las Vegas landscape, and metropolitan areas in the paintings. I specifically work with this subject matter as a means to explore abstraction, and alternative painting media, while engaging the public in discussions on land use and development by means of abstractions, patterns, and relatable colors. My process is procedure oriented by building layers, pushing materials to their limits, and attempting to communicate the nature of developments and construction in the way that I paint. I am exploring the use of Holbein Acryla Colored Gesso as well as a vinyl based paint, Flashe, on large scale paintings that will be visually addressing the patterns related to suburban sprawl through abstraction. Both media are well suited to large scale paintings because of their matte finish and retain visual qualities that are highly reflective of the Las Vegas landscape- the Strip, the sprawl, and the desert alike. These works will be on view in various shows around Las Vegas, as well as being an integral part of my Thesis exhibition in Spring 2016.
82. **Expressing and Celebrating Queer Culture through Art**  
Elizabeth Johnson, Department of Art

My goals are to explore the female orgasms between two lesbians in the midst of intercourse through art. I will express muscular contractions of pleasure from arousal to post climax in an abstract and metaphysical performance piece. A female orgasm is unique upon itself and only heightened in complexity when it happens during the inner intimacy between two women. Muscles tighten in this experience while blood and tensions build up during sexual arousal. The orgasm reverses this process through a series of rhythmic muscle contractions. The body is released of tension and returns to its prearousal state. The rhythmic values of the female to female orgasm can best be represented by a series of moments or a set of steps, and thus I believe the female orgasm can only be presented in this abstract expression through performance.

My research will include the use of high quality micro inspection cameras. These items will be major components to my research. I have added three various size cameras in my itemized list. This will give me three different perspectives per vagina. In total, I will have six different films of the internal tension to the release in sexual pleasure. Each of which will enable me to explore and create my abstract representation of the intimacy of orgasm between lesbians. The internal examination of this female-to-female orgasm will be necessary to understand the dynamics that will transcend into a fluid performance so people may observe something that is normally hidden to the naked eye.
83. Emphasizing Entertainment and Esthetic Aspects of Edible Rooftop Gardens Produces Development Opportunities in Sync with Las Vegas Resort Objectives: Re-envisioning the Sands Expo Roofscape
Alfred Pulido, School of Architecture

My proposal is focused on studying the economic benefits from an edible rooftop garden. Within this proposal the objective is to examine and compare the current embodied energy that it takes to import produce with a recommended edible green roof system that would allow casinos to harvest their own produce. By comparing the annual capital costs from imported to locally grown food we can possibly determine if an edible roof garden is a practical option for casinos.

According to Jennifer Hughes, Edible rooftop gardens are a new and innovative way to help benefit communities, building owners, and the environment through commercial scale hydroponic on urban rooftop farms. It is a form of growing local edible vegetation that reduces or eliminates the negative effects of importing outsourced produce, and allows the user to closely monitor the production of a healthier organic product.

One of the concerns is that Las Vegas has a great demand for imported goods, which are essential to accommodate the immense traffic of tourists, thus causing high emissions and waste byproducts as a direct result of food import.

By incorporating edible rooftop gardens in Las Vegas Casinos I want to understand the overall economic impact of this new practice. The majority of casinos have flat empty spaces that are not being utilized. With a suggested approach for an edible rooftop garden, the potential is to evaluate the economic benefits that would show a worth of this investment and take into account of the prosperity of the environment.
My work explores the decorative imagery that shapes our visual landscape. From textiles to signage and from the handmade to the mechanically produced, the decorative often becomes overlooked due to the immense amount of imagery we encounter on a daily basis. By taking samples from things observed in my surroundings I begin to draw out interesting moments that can be lost in our over saturated visual culture. By layering I am able to simulate how these images present themselves in the everyday. A painting can start by taking cues from a jumble of patterned clothes on a bedroom floor, a mash-up of billboards, or a layering of windows on a computer screen combining all this with remnants of the painting process to create a whole new image or simply reframing appropriated imagery.

The work takes form in a variety of media. I use acrylic and oil paints to create non-representational paintings often using stenciiling to produce flat graphic imagery. I also use dye on silk to explore the relationship between craft and art. The imagery on silk is usually of painterly marks which examines the question of what is painting and is it still painting if it takes the form of something that can be either worn or hung on the wall. I also work with screen printing which is a printmaking technique that always me to create multiples and repeats of imageries and gives me the ability to layer images quickly.
85. **Instax Body Project**  
Shelbi Schroeder, Department of Art

In my recent work, I am exploring the connection between the body and the mind and how this connection influences the ability to overcome self-doubt. In a society that is overrun with imagery, there is a lot of pressure to look a certain way and I have been exploring the effects this has on the self-esteem of young adults. In March of 2012, I started testing my hypothesis using my own body. I am interested in testing several ways to disconnect the mind from being defined by body. I began my study by taking a daily nude self-portrait. I saw my body so many times I was able to surrender my habit of defining “self” by my body. I saw and felt positive results from this test. By testing my hypothesis on more than just myself I will be able to see if this idea can become a theory.

I currently have six participants who have committed to taking a daily nude image for three months. Through previous sponsorship with the Graduate & Professional Student Association, I was able to provide a Fuji Film Instax camera as well as three months’ worth of film, and a journal. I am asking them to write the date on each image and to write in the journal when they feel it is needed. In August 2014, the first round of participants will be done and I will then be sending out the camera to a second round of participants who will be conducting this project for a period of six months ending in March of 2015. It is my hope that these participants become accepting of their body in this project.

Presentation: Exhibition, Grant Hall Gallery on the UNLV Campus April 12 – 19, 2015
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avelar, Melissa</td>
<td>232</td>
</tr>
<tr>
<td>Abdalla, Amro</td>
<td>144</td>
</tr>
<tr>
<td>Adibelli, Elif</td>
<td>132</td>
</tr>
<tr>
<td>Adkins, Amy Beth</td>
<td>133</td>
</tr>
<tr>
<td>Alvarado, Israel</td>
<td>167</td>
</tr>
<tr>
<td>An, Wei</td>
<td>71</td>
</tr>
<tr>
<td>Arar, Monique</td>
<td>58</td>
</tr>
<tr>
<td>Bain, Wyatt</td>
<td>49</td>
</tr>
<tr>
<td>Baker, Jonathan</td>
<td>55</td>
</tr>
<tr>
<td>Barcio, Audrey</td>
<td>233</td>
</tr>
<tr>
<td>Bartel, Kristyne</td>
<td>171</td>
</tr>
<tr>
<td>Bartlett, Courtney</td>
<td>146</td>
</tr>
<tr>
<td>Batilov, Iani</td>
<td>145</td>
</tr>
<tr>
<td>Baxter, Nicholas</td>
<td>110</td>
</tr>
<tr>
<td>Bejinariu, Alexa</td>
<td>190</td>
</tr>
<tr>
<td>Bhaduri, Moinak</td>
<td>35</td>
</tr>
<tr>
<td>Biesiada, Anaieita</td>
<td>100</td>
</tr>
<tr>
<td>Birds, Jonathan</td>
<td>102</td>
</tr>
<tr>
<td>Bishop, Melissa</td>
<td>150</td>
</tr>
<tr>
<td>Bockman, Paige</td>
<td>70</td>
</tr>
<tr>
<td>Bolton, Monica</td>
<td>73</td>
</tr>
<tr>
<td>Boppre, Breanna</td>
<td>126</td>
</tr>
<tr>
<td>Brackett, Aurora</td>
<td>59</td>
</tr>
<tr>
<td>Bradley, Jonathan</td>
<td>117</td>
</tr>
<tr>
<td>Brown, Jennifer</td>
<td>169</td>
</tr>
<tr>
<td>Bukhary, Syeda Saria</td>
<td>149</td>
</tr>
<tr>
<td>Chadliev, Katerina</td>
<td>193</td>
</tr>
<tr>
<td>Chambers, Wendy</td>
<td>234</td>
</tr>
<tr>
<td>Chameroy, Eric</td>
<td>28</td>
</tr>
<tr>
<td>Chang, Ecsile</td>
<td>173</td>
</tr>
<tr>
<td>Chen, Chao</td>
<td>52</td>
</tr>
<tr>
<td>Clark, Theresa Ann</td>
<td>172</td>
</tr>
<tr>
<td>Clark, Cynthia</td>
<td>221</td>
</tr>
<tr>
<td>Claudat, Kimberly</td>
<td>76</td>
</tr>
<tr>
<td>Cogliano, Megan</td>
<td>229</td>
</tr>
<tr>
<td>Conner, Christopher</td>
<td>110</td>
</tr>
<tr>
<td>Cook, Denise</td>
<td>115</td>
</tr>
<tr>
<td>Coupé, Austin</td>
<td>178</td>
</tr>
<tr>
<td>Crespin, Alicia</td>
<td>29</td>
</tr>
<tr>
<td>Crisp, Alexis</td>
<td>31</td>
</tr>
<tr>
<td>Dassopoulos, Andrea</td>
<td>125</td>
</tr>
<tr>
<td>Decker, Laura</td>
<td>135</td>
</tr>
<tr>
<td>Dema, Alexandra</td>
<td>136</td>
</tr>
<tr>
<td>DeVaul, Lina</td>
<td>138</td>
</tr>
<tr>
<td>DiBenedetto, Katelyn</td>
<td>72</td>
</tr>
<tr>
<td>Dick, Jessica</td>
<td>174</td>
</tr>
<tr>
<td>Dulger, Mehmet</td>
<td>139</td>
</tr>
<tr>
<td>El Ibrahimi, Sanae</td>
<td>181</td>
</tr>
<tr>
<td>Erlingsson, Haftor</td>
<td>128</td>
</tr>
<tr>
<td>Eugenis, Katherine</td>
<td>117</td>
</tr>
<tr>
<td>Famoush, Michelle</td>
<td>175</td>
</tr>
<tr>
<td>Fischer, Kyle</td>
<td>235</td>
</tr>
<tr>
<td>Friedel, Craig</td>
<td>103</td>
</tr>
<tr>
<td>Gainey, Seth</td>
<td>51</td>
</tr>
<tr>
<td>Galloway, Lauren</td>
<td>112</td>
</tr>
<tr>
<td>Gavrilova, Yulia</td>
<td>200</td>
</tr>
<tr>
<td>Gedo, Sara</td>
<td>53</td>
</tr>
<tr>
<td>Gentry, Amanda</td>
<td>156</td>
</tr>
<tr>
<td>Gharehdaghimollahajloo, Samad</td>
<td>151</td>
</tr>
<tr>
<td>Gourrier, Al</td>
<td>105</td>
</tr>
<tr>
<td>Grahl, Kory</td>
<td>187</td>
</tr>
<tr>
<td>Greenwood, Joshua</td>
<td>32</td>
</tr>
<tr>
<td>Guttman, Jennifer</td>
<td>223</td>
</tr>
<tr>
<td>Halligan, Maureen</td>
<td>236</td>
</tr>
<tr>
<td>Hammond, Krystal</td>
<td>74</td>
</tr>
<tr>
<td>Harrington, Anthony</td>
<td>34</td>
</tr>
<tr>
<td>Harry, John</td>
<td>168</td>
</tr>
<tr>
<td>Hartel, Caldonia</td>
<td>172</td>
</tr>
<tr>
<td>Hartman, Jessica</td>
<td>50</td>
</tr>
<tr>
<td>Heaney, Chelcia</td>
<td>202</td>
</tr>
<tr>
<td>Heen, Miliaikeala</td>
<td>196</td>
</tr>
<tr>
<td>Henceroth, Nathan</td>
<td>120</td>
</tr>
<tr>
<td>Homtong, Nudthawud</td>
<td>159</td>
</tr>
<tr>
<td>Hu, Qingting</td>
<td>114</td>
</tr>
<tr>
<td>Izzo, Antoinette</td>
<td>75</td>
</tr>
<tr>
<td>Jarvi, Forrest</td>
<td>77</td>
</tr>
<tr>
<td>Jazaei, Robabeh</td>
<td>153</td>
</tr>
<tr>
<td>Johnson, Elizabeth</td>
<td>237</td>
</tr>
<tr>
<td>Juniel, Pamela</td>
<td>220</td>
</tr>
<tr>
<td>Kayl, Andrea</td>
<td>204</td>
</tr>
<tr>
<td>Keach, Levi</td>
<td>201</td>
</tr>
<tr>
<td>Kennedy, Logan</td>
<td>197</td>
</tr>
<tr>
<td>Kha, Cindy</td>
<td>44</td>
</tr>
<tr>
<td>Kumanchik, Jenni</td>
<td>33</td>
</tr>
<tr>
<td>Larson, Kathleen</td>
<td>210</td>
</tr>
<tr>
<td>Lauzon, Ashley</td>
<td>203</td>
</tr>
<tr>
<td>Lee, Bern</td>
<td>211</td>
</tr>
<tr>
<td>Lee, Sungchul</td>
<td>147</td>
</tr>
<tr>
<td>Lee-Tataseo, Cindy</td>
<td>166</td>
</tr>
<tr>
<td>Liddell, Lindsay</td>
<td>193</td>
</tr>
<tr>
<td>Long, Joleen</td>
<td>60</td>
</tr>
<tr>
<td>López, Erick</td>
<td>191</td>
</tr>
</tbody>
</table>
INDEX

Macfarlane, Rachel ....................... 113
MacIntosh, Sara Raffae .................  90
Maher, Pamela ..................................225
Maiorca, Cathrine ............................ 224
Marti, Erica .....................................  48
Martinez, Matthew ............................  80
Masaki, Erika ...................................124
Mast, Daniel .....................................148
Mayfield, Abigail ..............................214
McAuley, Amy Jane .........................  206
McGilligan, Clancy .........................  61
McGinn, Donald ...............................  45
McHale, Timothy ...............................207
Miller, Kayla ...................................  62
Miyose, Colby ...................................  99
Mizrachi, Dory ................................ 194
Mohammed Abdul, Ata Ur Rahman ....  30
Moncrieff, Michael ...........................  82
Moynihan, Stefanie .........................  96
Murtishaw, Andrew ...........................  81
Nave-Blodgett, Jessica ....................  84
Nealy, Schetema ................................226
Nelson, Alex .....................................  83
Newman, Stacy ................................ 193
Nordin, Andrew ...............................  41
Oganesyan, Rafael ............................ 116
Oknaian, Saro ..................................180
Oldenkamp, Camilla .......................  63
Overholser, Amber ......................... 104
Parreira, Christina ......................... 123
Part, Rachel .....................................222
Petersen, Brady ................................ 183
Picker, Michael ...............................  38
Pirbastami, Sogol ............................  56
Pollard, Derek .................................  64
Porter, Katelyn ............................... 185
Pour Yazdanpanahm, Ali ...............  152
Prisbrey, Amanda .............................  39
Pulido, Alfred ..................................238
Rakhkovskaya, Liya .......................  86
Rehmat, Abeera ...............................228
Riggleman, Samantha ......................137
Rissman, Moritz .............................. 111
Robison, Rebecca ............................  65
Rock, Lisa .......................................239
Roebuck, Keivan ............................. 103
Ross, Emma .....................................  91
Russell, Alexander ..........................179
Sahl, Allison .................................. 121
Sakiyama, Mari ................................122
Saladino, Caitlin ............................. 140
Sampson, Carrie ............................. 195
Sanderson, Zachary ....................... 230
Santoyo, Christina .........................  141
Schafer, Tyler .................................  109
Schroeder, ShAprilb ......................... 240
Schubert, Kimberly .........................  205
Sharma, Surbhi ...............................  40
Shrestha, Kishor .............................  54
Shrestha, Sichu ...............................  58
Silvaroli, John ............................... 188
Simmons, Mary ............................... 227
Siska, Emily ..................................  157
Slaughter, Katherine ......................  232
Smith, Kevin ...................................  101
Standerfer, Alexa ...........................  182
Steiner, Michael .............................  160
Stone, Tori .....................................  184
Stout, Kelly ...................................  108
Suh-Lee, Candace ............................  162
Sylvia, Jason .................................  161
Tamaddun, Kazi ..............................  163
Tegtmeyer, Caryn .........................  212
Thomson, Joseph ............................  198
Tica, Christina ...............................  85
Toussaint, Mark ..............................  215
Trevathan, Michael .........................  129
Turgut, Refika ...............................  132
Vallin, Carmen ...............................  42
Vanden Bosch der Nederlanden, C ..  93
Villanueva, Ann Michelle .............  66
Volsche, Shelly ..............................  87
Walker, Bob .................................  142
Walsh, Mandy .................................  216
Watanabe, Kenneth .......................  43
Watkins, Brittnie .........................  134
Weber, Denise ...............................  67
Weintraub, David .........................  213
Werner, Laura ...............................  208
Westfall, R. Shane .........................  217
Whitmer, Jennifer .........................  127
Willis, William ...............................  92
Willis, Carolyn .............................  192
Wilson, Jared ...............................  186
<table>
<thead>
<tr>
<th>Name</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wolffis, Jarod</td>
<td>164</td>
</tr>
<tr>
<td>Wonder, Kaylee</td>
<td>170</td>
</tr>
<tr>
<td>Woods, Aaron</td>
<td>94</td>
</tr>
<tr>
<td>Zink, Davor</td>
<td>95</td>
</tr>
</tbody>
</table>