We thank you all for your contributions to this event. Without your collaboration recognition of the efforts of undergraduate researchers would not have been possible.

**CSUN Undergraduate Student Government**

**Faculty Research Mentors**

**Student Union Event Services**
*Rosita Chapman, Conference and Event Coordinator*

**The Division of Research and Economic Development**

**The Office of the Executive Vice President and Provost**

**The Office of Undergraduate Research**

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**Dr. Cheryl Anderson**
*Department of Anthropology*

**Dr. Levent Atici**
*Department of Anthropology*

**Dr. Pradip Bhomik**
*Department of Chemistry & Biochemistry*

**Ms. Michele Casella**
*NSHE EPSCoR*

**Mr. Thaddeus Celia-Zoellner**
*Department of Art*

**Mr. Patrick Daleiden**
*Department of Computer Science*

**Ms. Janelle Evans**
*Department of Film*

**Dr. Alfredo Fernandez-Gonzalez**
*School of Architecture*

**Dr. Andrew Freeman**
*Department of Psychology*

**Ms. Rebecca Gates**
*Department of Educational Psychology & Higher Education*

**Dr. Danica Hays**
*Dean’s Office, College of Education*

**Dr. Tiffany Howard**
*Department of Political Science*

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*Office of the Vice Provost for Academic Affairs*

**Ms. Sarah Maclntosh**
*Department of Anthropology*

**Dr. Erica Marti**
*Department of Engineering*

**Dr. Miriam Melton-Villanueva**
*Department of History*

**Dr. Meghan Pierce**
*Department of Psychology*

**Ms. Raegan Pietrucha**
*Division of Research & Economic Development*

**Dr. Boo Shan Tseng**
*School of Life Sciences*

**Dr. Denise Tillery**
*Department of English*

**Mr. William Willis**
*Department of Anthropology*

**OUR-UNLV Research Ambassadors**

Alexandria Bragg
Sophia Phan
Delon Roberts
Nicole Thomas
Come visit us at our new temporary location in the Campus Services Building (CSB 163A)!

The Mission of the UNLV Office of Undergraduate Research (OUR-UNLV) is to inspire undergraduates in their efforts to discover, innovate, create, and experience research here on campus and in the community. In essence, we are...

**Building and Supporting OUR Culture of Research!**

**OUR CONTACT INFO**

Phone: 702-895-2367  
Email: OUR@unlv.edu  
Website: unlv.edu/OUR  
@OURUNLV

**OUR STAFF**

Dr. Liam Frink, Executive Director of Undergraduate Research  
Dr. Sharon Young, Program Manager  
Surya Avasarala, Graduate Assistant  
Lauren Galloway, Graduate Assistant  
Bridgett Giordmaina, OUR Consultant  
Sophia Phan, Student Worker/Research Ambassador  
Delon Roberts, Student Worker/Research Ambassador  
Nicole Thomas, Student Worker/Research Ambassador

**RESEARCH AMBASSADORS**

OUR Research Ambassadors are undergraduates with extensive research experience who represent a range of interests and fields across campus. The Ambassadors exist to promote undergraduate research on our campus, and represent the Office of Undergraduate Research at a variety of events.

Alexandria Bragg  
School of Life Sciences

Delon Roberts  
Department of Mathematical Sciences
I want to thank you all for participating in the Second Annual Spring Undergraduate Research Showcase. This is a TREMENDOUS event highlighting the incredible campus-wide research of our UNLV undergraduates and their work with our world-class faculty and graduate student research mentors. Research is the heart of your education here at UNLV and undergraduate research is an essential element of our Top Tier aspirations. The research represented at this forum has the incredible and exciting potential to impact our Las Vegas community and beyond! GREAT work, everyone!

Dr. Liam Frink, Executive Director of Undergraduate Research
<table>
<thead>
<tr>
<th>Page Range</th>
<th>Section</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Schedule of Events</td>
</tr>
<tr>
<td>8-11</td>
<td>Presentations at a Glance</td>
</tr>
<tr>
<td>12-16</td>
<td>Podium Abstracts</td>
</tr>
<tr>
<td>17-47</td>
<td>Poster Abstracts</td>
</tr>
<tr>
<td>48-52</td>
<td>Index of Presenters</td>
</tr>
<tr>
<td>53</td>
<td>NEW! Summer Undergraduate Research Funding</td>
</tr>
</tbody>
</table>
9:00 - 9:30
Check-In

9:30 - 12:00
Presentations
Podium Presentations in SEB Auditorium; Poster Presentations in SEB Halls

11:30 - 12:30
Lunch
Served in SEB Halls

12:30 - 1:00
Invited Guest Speakers
Ryan Francis, Department of Psychology
Nemanja Novakovic, School of Life Sciences
Yana Ryjova, Department of Psychology
Soyoung Lee, Department of Art

Dr. Matthew Della Sala
Research Advisor, McNair Scholars Institutes/AANAPISI
The Center for Academic Enrichment and Outreach

1:00 - 1:30
Awards Ceremony for Outstanding Presentations

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<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Presenter(s)</th>
<th>Department(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>Respectability Politics and Black Lives Matter</td>
<td>Ashley Hamilton</td>
<td>Department of Sociology</td>
</tr>
<tr>
<td>9:45</td>
<td>Prescribing Change for Minority Students: Diagnosing Inequalities in Science Education in the Clark County School District</td>
<td>Brianna Cotter</td>
<td>Interdisciplinary, Gender, &amp; Ethnic Studies</td>
</tr>
<tr>
<td>10:00</td>
<td>Examining the Effects of Benzodiazepines on Epilepsy During Development</td>
<td>Christina Joya &amp; Rochelle Hines</td>
<td>Department of Psychology</td>
</tr>
<tr>
<td>10:15</td>
<td>Modulation of TSPO Attenuates Seizures in GABAa Alpha 2 Mice</td>
<td>Audrey Donald &amp; Dustin Hines</td>
<td>Department of Psychology</td>
</tr>
<tr>
<td>10:30</td>
<td>BREAK</td>
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<tr>
<td>10:45</td>
<td>Changes in the Expression of GABAA Receptor Subunits throughout Enteric Nervous System Development</td>
<td>Justin Bauzon &amp; Rochelle Hines</td>
<td>Department of Psychology</td>
</tr>
<tr>
<td>11:00</td>
<td>Mexican vs Mexican American: Cultures of Protest</td>
<td>Marcus Fuller</td>
<td>Department of Political Science</td>
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<tr>
<td>11:15</td>
<td>Tlateloco Massacre</td>
<td>Julio Garcia</td>
<td>Department of Marketing and International Business</td>
</tr>
<tr>
<td>11:30</td>
<td>Stability in the Face of Revolution: An analysis of San José de Gracia's role in Mexico's Cristero War</td>
<td>Aldair Pulido</td>
<td>Department of History</td>
</tr>
<tr>
<td>11:45</td>
<td>Progression of American Opinions on the Mexican Revolution</td>
<td>Michael McNeiece</td>
<td>Department of History</td>
</tr>
<tr>
<td>9:30</td>
<td>A Gene Commonly Mutated In Pseudomonas Aeruginosa Clinical Isolates is Required for Bacterial Viability</td>
<td>Melissa Schofield, Lia Michaels, &amp; Boo Shan Tseng</td>
<td>School of Life Sciences</td>
</tr>
<tr>
<td>9:45</td>
<td>Are Dialkyl-4,4’ Bipyridinium Tosylates and Triflimides Toxic to Bacteria?</td>
<td>Sujata Arcaneparamb, Shane Killarney, Hae-sook Han, Pradip Bhowmik, Boo Shan Tseng, &amp; Christina Lee</td>
<td>Multiple Disciplines</td>
</tr>
<tr>
<td>10:00</td>
<td>Nanotechnology for Water-Less Cleaning of Solar Panels</td>
<td>Stephanie Sili, Sanjana Das, &amp; Biswajit Das</td>
<td>Department of Electrical and Computer Engineering</td>
</tr>
<tr>
<td>10:15</td>
<td>The Role of Extracellular Matrix Proteins in Biofilm Formation in Pseudomonas Aeruginosa</td>
<td>Sophia Araujo, Kenneth Calimlim, &amp; Boo Shan Tseng</td>
<td>School of Life Sciences</td>
</tr>
<tr>
<td>10:30</td>
<td>BREAK</td>
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<tr>
<td>10:45</td>
<td>Effects of Load Carriage on Lower Extremity Joint Patterns in Children with Autism Spectrum Disorder</td>
<td>Luis Flores, Jeffrey Eggleston, Mieko Mamauag &amp; Janet Dulek</td>
<td>Department of Kinesiology and Nutrition Sciences</td>
</tr>
<tr>
<td>11:00</td>
<td>Identifying Gene and MicroRNA Control of LIHS Retrotransposon Expression in Human Somatic Cells</td>
<td>Sophia Quinton</td>
<td>School of Life Sciences</td>
</tr>
<tr>
<td>11:15</td>
<td>Comparison of Various Compounds in the Prevention of Clostridium Difficile Infection</td>
<td>Dung (Jenny) Do, Jacqueline Renee Phan, &amp; Ernesto Abel-Santos</td>
<td>Department of Chemistry and Biochemistry</td>
</tr>
<tr>
<td>11:30</td>
<td>Is the Development of Antibiotic Resistance in Paenibacillus Larvae Influenced by Phage?</td>
<td>Erin Cassin &amp; Penny Amy</td>
<td>School of Life Sciences</td>
</tr>
<tr>
<td>11:45</td>
<td>Personalized Medicine Survey: Premed Students’ vs Non Pre-med Students’ Opinions</td>
<td>Mahdeed Raja, Jenica Abrudan, Xiangxue Xiao, Kathryn Korgan, &amp; Qing Wu</td>
<td>Multiple Disciplines</td>
</tr>
</tbody>
</table>
**Session C: POSTER SESSION II**

**ENGINEERING, HEALTH SCIENCES, & SCIENCES II**

Posters 10-18

9:30  Evaluating the Accuracy of the 13CO2 Metabolic Flux Analysis Technique in Pure Culture  
**Devon Payne,** Scott Thomas, Kevin Tamadonfar, Cale Seymour, & Brian P. Hedlund, School of Life Sciences

9:45  Inhibition of Bacteria Applying Natural Alternatives  
**Brandon Gepford,** School of Life Sciences

10:00  Spectrally-Selective Copper-Oxide Spinel Absorber Coatings for High-Temperature Concentrated Solar Power Systems  
**Cilla Jose,** Dale Karas, Samuel Tam, & Hyeunhwan An, Multiple Disciplines

10:15  Effects of Different Levels of Carbon Addition on Biological Invasions in the Mojave Desert  
**Matthew Rader,** School of Life Sciences

10:30  BREAK

10:45  Mapping Antibiotic Resistance Genes in Las Vegas Soil  
**Kathie Velez,** Keely Biggs, Aziza Dhalai, Cristian Pascasio, Kendra Kimberley, & Deborah V. Harbour, Multiple Disciplines

11:00  Bioavailability of Mineral-Bound Iron to a Snow Algae Community with Implications for Earth’s Albedo  
**Elisabeth Hausrath,** Zoe Harrold, Oliver Tshauner, Angela Garcia, Allison Murray, Courtney Bartlett, & Jim Raymond, Multiple Disciplines

11:15  The Role of Mfd in Bacillus subtilis: Protection against Oxidative Damage  
**A. Bernadette Kirschenheiter,** Holly Anne Martin, Kate Porter, Carmen Vallin, & Eduardo A. Robleto, School of Life Sciences

11:30  Examining the Influence of Backpack Weight on Stride Kinematics among Children with Autism Spectrum Disorder  
**Mieko Mamauag,** Jeff Eggleston, & Luis Flores, Department of Kinesiology and Nutrition Sciences

11:45  Analyses of Novel Transposable Element Insertions in Cancerous Genomes  
**Nicky Chung,** Austin Ross, Adrian Alberto2, Daphnie Churchill, Cody Clymer, G.M. Jonaïd, & Sophia Quinton, Multiple Disciplines

**Session D: POSTER SESSION**

**EDUCATION & LIBERAL ARTS**

Posters 19-26

9:45  The Interactive Effects of Perfectionism and Sociocultural Idealization of Thinness on Disordered Eating Symptoms  
**Jessica Habashy** & Kristen Culbert, Department of Psychology

10:00  Long-Lasting Memory for Musical Beat in Older Children, But Not Younger Children  
**Jessica Jensen,** Mary Sanchez, Karli M. Nave, Joel S. Snyder, & Erin E. Hannon, Department of Psychology

10:15  Narratives of Māori/Kiwi Identity and Constructions of Nature  
**Annalisa Palmer,** Department of English

10:30  BREAK

10:45  Prostaglandin D2 as a Novel Treatment for Sleep Dysregulation in Subpopulations of Major Depressive Disorder  
**Chase C. Colburn** & Alejandro Serru, School of Life Sciences

11:00  Murine Model of Social Isolation Alters Astrocyte Morphology  
**Beatriz Torres** & Dustin Hines, Department of Psychology

11:15  Children Synchronize Their Finger Taps to Rhythms through Iterated Reproduction  
**Jessica Mussio-Marquez,** Anna Sukiasian, Karli M. Nave, & Erin E. Hannon, Department of Psychology

11:30  Prodromal Alterations of Sleep Architecture in a Murine Model of Multiple Sclerosis  
**Cody Quinn** & Dustin Hines, Department of Psychology

11:45  Teaching Vocabulary to College Students with Intellectual Disabilities and Autism  
**Cara Dace,** Matthew Chappa, Winter Hendel, & Felisha Wells, Department of Educational and Clinical Studies
### Session E: POSTER SESSION
#### FINE ARTS & LIBERAL ARTS

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors/Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:30</td>
<td>The Interplay between GABA a2 and Dopamine Receptors on Addiction: An Alternative Addiction Hypothesis</td>
<td>Reggie Anderson &amp; Rochelle Hines, Department of Psychology</td>
</tr>
<tr>
<td>9:45</td>
<td>Identity, Resilience, and Career Commitment in Relation to Success in STEM Fields</td>
<td>Tori DiBona &amp; James Abelar, Department of Psychology</td>
</tr>
<tr>
<td>10:00</td>
<td>Determining the Localization of 5HT2A and 5HT2B Receptors Leads to Enhanced Understanding of 5HT Receptor Agonists and Their Behavioral Effects</td>
<td>April Contreras &amp; Rochelle Hines, Department of Psychology</td>
</tr>
<tr>
<td>10:15</td>
<td>Associations between Perspective-Taking, Racial Bias, and Social Activism</td>
<td>Hector Chaidez, Gala Tang, James Abelar, Tori DiBona, &amp; Jennifer Buck, Department of Psychology</td>
</tr>
<tr>
<td>10:30</td>
<td>BREAK</td>
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</tr>
<tr>
<td>10:45</td>
<td>Investigating Perception of Meter in Diverse Populations Through Online Testing</td>
<td>Jared Leslie &amp; Anthony Romero, Department of Psychology</td>
</tr>
<tr>
<td>11:00</td>
<td>Bad Butchers</td>
<td>Quinn Bozzano &amp; Levent Atici, Department of Anthropology</td>
</tr>
<tr>
<td>11:15</td>
<td>A Bioarchaeological Analysis of Vertebral Pathology at Non Nok Tha</td>
<td>Chloe Bender &amp; Alecia Schrenk, Department of Anthropology</td>
</tr>
<tr>
<td>11:30</td>
<td>The Relationship between Physical Aggression and Sports Participation</td>
<td>Armani Rodriguez, R. Shane Westfall, &amp; Murray Millar, Department of Psychology</td>
</tr>
<tr>
<td>11:45</td>
<td>What You See Is Not What You See</td>
<td>Soyoung Lee, Department of Art</td>
</tr>
</tbody>
</table>

### Session F: POSTER SESSION I
#### BUSINESS & LIBERAL ARTS I

<table>
<thead>
<tr>
<th>Time</th>
<th>Title</th>
<th>Authors/Institutions</th>
</tr>
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<tbody>
<tr>
<td>9:45</td>
<td>IJI Immigrants Justice Initiative</td>
<td>Sarah Kane, Claudia Chiang-Lopez, Emmanuel Flores, Mady St. John, Jessica Lilang, Emily Vaughan, Ingrid Lopez, Demetrius Morgan, &amp; Arlene Amarante, Multiple Disciplines</td>
</tr>
<tr>
<td>10:00</td>
<td>MMA Wages: The Determinants of UFC Fighter's Salaries</td>
<td>Jordan Eisinger, Department of Economics</td>
</tr>
<tr>
<td>10:15</td>
<td>There's No Place like Home(lessness)</td>
<td>Francesca Manz, Natasha Driscoll, Austin Helin, &amp; Jonas Rand, Multiple Disciplines</td>
</tr>
<tr>
<td>10:30</td>
<td>BREAK</td>
<td></td>
</tr>
<tr>
<td>10:45</td>
<td>Environmental Crisis and Sustainability in the 21st Century</td>
<td>Patricia Richards, Shane Scheier, Jorge Ortiz, Multiple Disciplines</td>
</tr>
<tr>
<td>11:00</td>
<td>CIA Knowledge and Involvement in the Tlatelolco Massacre</td>
<td>Emily Reddicks, Department of History</td>
</tr>
<tr>
<td>11:15</td>
<td>Juarez: The Land of the Missing Women</td>
<td>Lidia Lule, Department of History</td>
</tr>
<tr>
<td>11:30</td>
<td>Don't Be Salty</td>
<td>Lexy Silva, Andrew Rigney, Steven Blondin, Brenna Thornley, Multiple Disciplines</td>
</tr>
<tr>
<td>11:45</td>
<td>Battle of the Sexes: Disparities in Health and Nutrition among Men and Women</td>
<td>Stefania Goga, Tori Roberto, Mariely Febeles, &amp; Ahmed Coulibaly, Multiple Disciplines</td>
</tr>
</tbody>
</table>
**Session G: POSTER SESSION II**  
**BUSINESS & LIBERAL ARTS II**

Posters 44-51

9:45  
Soldaderas and their Roles in the Mexican Revolution  
*Paola Gonzalez & Sara Meraz*, Multiple Disciplines

10:00  
Navigating Higher Education and Resources for Undocumented/DACA students  
*Esmeralda Cruz, Cherokee Conley, Dustin Brown, Miranda Evans, Danielle Fazio, Sarah McLaughlin, Rauwshan Abdul-Hamid, & Xena Stamm*, Multiple Disciplines

10:15  
Does Having Children Make Cents? An Economic Analysis of the Gender Pay Gap in the United States  
*Jeffrey Wheble*, Department of Economics

10:30  
BREAK

10:45  
Food Waste at Home  
*Joseph Koh, Gerardo Pedroza, & Janer Pacheco*, Multiple Disciplines

11:00  
Beef: Is It worth It?  
*Vanessa Haroan*, Department of Psychology

11:15  
Local Food Sourcing in Southern Nevada: Frequency, Feasibility, and Comparison  
*Brianna Garcia, Maria Straziuso*, Shannon Kawamura, Angela Domanico & Shila Equipado, Department of Anthropology

11:30  
Tierra y Libertad  
*Micelle Brown*, Department of History

11:45  
Pipelines, Land Seizure, and Indigenous Communities: The 19th Century to Today  
*Alyssa Diaz & Alejandra Herrera*, Multiple Disciplines

**Session H: POSTER SESSION**  
**LIBERAL ARTS**

Posters 52-58

9:45  
Clark County Education: Helping Latinos  
*Juan Quiroz*, Department of History

10:00  
Crap, Compost, Corn: Composting on the Strip  
*Daniel Tafoya, Patrice Duecker, Brie-Anne Lavoie, Anthony Scott, & Zach Groover*, Multiple Disciplines

10:15  
Ancient Mesoamerica Survives in Indigenous Mexican Fashion  
*Dylan Scott*, Department of History

10:30  
BREAK

10:45  
The Improvement of Student Retention and Student Graduation Rates Pertaining to a Sense of Belonging  
*Xiomara Gonzalez, Kolby Akiyama, Dare Crown, Josh Kaplan, & Valonna Thrower-Love*, Multiple Disciplines

11:00  
From Revolutionary to Hierarchical: the Development of Mexican Political Parties and a Culture of Violence  
*Cristian Barba*, Department of Sociology

11:15  
Food and Nationality  
*Jesse Corona, Roxayn Povidas, & Zac Dillard*, Multiple Disciplines

11:30  
It Takes a Community: Compiling a Model for Forming Community-Based Minority Health Coalitions  
*Sheila Carver, Tyler Ching, Hayley Blish, Shannon Williams, Timothy Castrolo, Malik Gloster, Micajah Daniels, & Eli Thompson*, Multiple Disciplines
RESPECTABILITY POLITICS AND BLACK LIVES MATTER

Ashley Hamilton
Department of Sociology

Faculty Research Mentor: Anna Smedley-Lopez, Ph.D.
University of Nevada, Las Vegas, Department of Sociology

Respectability politics is a component of color-blind racism in that it purports that neither race, ethnicity, nor complexion matters in the outcome of a person's life. Instead, respectability politics argues that a person's accomplishments and failures is the product of personal merit and respectability, while also ignoring structural and institutional racism. Respectability politics is a form of internalized oppression, in which members of a marginalized community police its own members to demonstrate how their values are in line with mainstream American values. Respectability politics negatively impacts a broader American perception, support, involvement, and sympathy for the Black Lives Matter movement by delegitimizing criticism of structural racism and violence against Black people; weaponizing collective racial identity by creating a sense of otherness and stratification; normalizing inherently racist sentiments and perpetuating middle class, white ideals (that are essentially anti-black); and blatantly disregarding the Black Lives Matter movement as an appropriate avenue of social change. Another obstacle to the acceptance of the Black Lives Matter movement is the romanticism surrounding the Civil Rights Movement largely based on the rhetoric and strategies for anti-discriminatory resistance that personify respectability politics, which was unsuccessful in challenging both socioeconomic disparity and anti-Black racism. This research attempts to illustrate how respectability politics indoctrinates members of the black community into the normal, dominant, and hegemonic, while also making the color-blind narrative the norm in American society, both of which negatively impact broader American perception, support, involvement, and sympathy for Black Lives Matter movement.
PREScribing CHANGE FOR MINORITY STUDENTS:
DIAGNOSING INEQUALITIES IN SCIENCE
EDUCATION IN THE CLARK COUNTY SCHOOL
DISTRICT

Brianna Cotter
Interdisciplinary, Gender, & Ethnic Studies

Faculty Research Mentor: Tim Gauthier, Ph.D.
University of Nevada, Las Vegas, Interdisciplinary, Gender, &
Ethnic Studies

Promoting entry of underrepresented minority groups into the allied health professions is paramount to developing a balanced workforce that reflects the needs of an evolving populace. Currently, significant underrepresentation of racial minority groups in health and science related fields correlates with data showing an overrepresentation of black and Hispanic students in Title 1 (at-risk and low-income) schools. Data suggest that students who are exposed to “higher quality” science education, such as “hands on” experiences, have increased interest in pursuing a health or science related career. These findings prompt the hypothesis that Title 1 schools have “lower quality” science education than Non-Title 1 schools. The study presented herein utilizes surveys targeted to Clark County School District high school science teachers to analyze variation in science education between Title 1 and Non-Title 1 high schools. These surveys revealed that Title 1 schools perform significantly fewer biology experiments than Non-Title 1 schools. In addition, this study indicates a correlation between lower socioeconomic status and the absence of a school science club. Science clubs are important outlets for mentorship and further exposure to science education, especially for minority students of low socioeconomic backgrounds. These results may provide the basis for legislative action to improve minority students’ access to health/science programs. Future retrospective and/or prospective studies may determine how secondary science education influences such factors as college acceptance rate, percentage of college matriculates declaring majors in science related fields, and ultimately, rates of entry into healthcare fields.

EXAMINING THE EFFECTS OF BENZODIAZEPINES ON EPILEPSY DURING DEVELOPMENT

Christina Joya & Rochelle Hines
Department of Psychology

Faculty Research Mentor: Rochelle Hines, Ph.D.
University of Nevada, Las Vegas, Department of Psychology

The Epilepsy Foundation estimates that 150,000 people will develop epilepsy each year. Epilepsy is associated with dysregulation of the ratio of excitatory to inhibitory signaling within the brain. Inhibitory signaling in the adult brain is controlled by gamma aminobutyric acid (GABA) receptors, and many forms of epilepsy have been linked to GABAA receptor dysfunction. We have developed a mouse model that displays developmental epilepsy and early mortality resulting from mutation in the GABAA receptor α2 subunit (Gabra2-1). Clinical studies indicate that benzodiazepines, as positive allosteric modulators of GABA receptors, are a first line treatment for epileptic seizures. Benzodiazepines promote the action of GABA, thereby reducing excitatory synaptic activity. We plan to examine the effects of benzodiazepines during the postnatal period on the incidence of seizures and mortality rates in Gabra2-1 pups. We will compare vehicle and benzodiazepine treated litters to determine if treatment impacts the number of pups that die and/or the age at which they die. This study will determine if benzodiazepines are an effective treatment for the form of epilepsy seen in the Gabra2-1 mice. Implications of this study may lead to further research on early treatments for developmental epilepsy.
Modulation of TSPO attenuates seizures in GABAa alpha 2 mice

Audrey Donald & Dustin Hines
Department of Psychology

Faculty Research Mentor: Dustin Hines, Ph.D.
University of Nevada, Las Vegas, Department of Psychology

All organisms strive to maintain homeostasis. Within the body, the brain also strives to maintain a balance between excitation (sending messages) and inhibition (stopping messages). If the delicate balance between excitation and inhibition is disrupted, it can lead to disorders such as epilepsy. Chemical messengers called neurotransmitters help to maintain this balance. GABA is the chief inhibitor neurotransmitter and plays an important role in epileptogenesis. Another less well studied neurotransmitter for inhibition are the ligands for the 18kda translocator proteins (TSPO). We hypothesize that much like the GABA drugs can treat seizures, the ligands for TSPO will attenuate seizures in a model of GABAa alpha 2 developmentally induced seizures by helping to shift the balance towards less excitation. We have recorded electroencephalography to record brains activity and to classify these signals by their amplitude, frequency, and type of seizures in GABAa alpha 2 and wildtype litter mate controls. Both groups will receive placebo or TSPO ligands to see whether or not TSPO ligands do attenuate seizures on the GABAa alpha 2 subunit. Although these TSPO ligands have been used to treat other brain pathologies this is the first set of experiments to address the role of these molecules in an animal model of a seizure disorder. Furthermore, TSPO ligands may aid in the synthesis of the essential tools GABAa alpha 2 needs to regulate homeostatic activity that maintains the normal balance and prevents seizures.

Changes in the expression of GABAa receptor subunits throughout enteric nervous system development

Justin Bauzon & Rochelle Hines
Department of Psychology

Faculty Research Mentor: Rochelle Hines, Ph.D.
University of Nevada, Las Vegas, Department of Psychology

Nearly all functions of the gastrointestinal tract are inherently regulated by the activity of the enteric nervous system. Previous studies have explicated on the functions of different neurotransmitter systems in the enteric nervous system, including gamma aminobutyric acid (GABA) receptors. GABAa receptors are the principal mediators of fast inhibitory synaptic transmission in the adult brain. GABA signaling is known to be an important therapeutic target in the brain, and has been suggested as a potential target for gastrointestinal disorders as well. Several important changes occur to the GABAa system during brain development, including changes in the expression of α1 and 2 receptor subunits, and a reversal in the chloride gradient. Brain abnormalities in GABA subunit expression have been implicated in neurodevelopmental disorders including autism spectrum disorders, and recent studies have associated gastrointestinal problems with these disorders as well. These findings together have prompted us to examine the patterns of GABAa receptor subunit expression in the gastrointestinal tract throughout development. Using a time-course analysis of mouse tissue samples, including both transverse cross-sections, and entire gastrointestinal tract preparations (Swiss Roll technique), we will examine the expression of GABAa receptor subunits throughout the postnatal period. Our preliminary analysis of mature samples shows GABAa receptor α2 subunit immunoreactivity on the surfaces of myenteric plexus and submucosal plexus neurons. These studies are expected to provide a framework for understanding GABA signaling in gastrointestinal development, with implications for gastrointestinal dysfunction in neurodevelopmental disorders.
MEXICAN VS MEXICAN AMERICAN: CULTURES OF PROTEST

Marcus Fuller
Department of Political Science

Faculty Research Mentor: Miriam Melton-Villanueva, Ph.D.
University of Nevada, Las Vegas, Department of History

This research examines public demonstrations across the decades following the Mexican Revolution to the present to determine the key values of Mexicans and Mexican Americans. Using the operational definition of a key value as one that people of Mexican descent have conducted demonstrations in order to protect, and the operational definition of a demonstration as any public act performed by an individual or group to express their views, I ascertain the specific grievances of both Mexicans and Mexican Americans to compare and contrast the two peoples’ discourse. A timeline is constructed that shows the dynamic and evolving values and experiences of both groups in order to present this information to the reader in an easily digestible way. Sources gathered will be predominantly primary, particularly those from newspapers, interviews, and photographs of student protests and marches all related to different forms of activism and demonstrations. The goal is to create a historiography that utilizes primary sources to develop a chronological overview of the dynamic opinions and struggles of Mexicans and Mexican Americans.

TATELOCO MASSACRE

Julio Garcia
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On October 2, 1968, the Mexican Army slaughtered thousands of citizens at the Plaza de las Tres Culturas, in Mexico City. As one of the popular movement leaders, I had the fortune—or misfortune—to witness the events that resulted in the assassination of thousands of men, women, and children. The shocking massacre was the direct response of the oligarchy ruling the nation at the time.

I participated as student, teacher, and citizen in the demonstrations against the status quo created by the seventy-year-old dictatorship of the official political party, the PRI. I was one of the founders of the COCO, an independent teachers union and the CNH, the students’ strike council. From July to October, I saw how the movement evolved from a few hundred participants to more than a million marchers. In this research I shed new light on the roots, development, and violent suppression of the first modern popular upheaval against the despotic party of the revolution.
PROGRESSION OF AMERICAN OPINIONS ON THE MEXICAN REVOLUTION

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History of foreign relations is a very interesting topic. The opinions of the common people in a country are also something that should be researched. The Mexican Revolution was a very influential event in Mexican history, so when researching the Mexican Revolution other countries' opinions on the topic should be researched as well. Due to its proximity and influence on the historical event, the United States is an important country to consider when researching the Mexican Revolution. American opinions on the Mexican Revolution, while it happened, were volatile. American people could not make up their mind on how they felt about the revolution. These changing opinions are shown very clear in newspapers that were published in America at the time of the Mexican Revolution. When researching history, it is very common for normal everyday people to be ignored, which is why this paper is important. This paper considers the opinions of ordinary people (people from the United States) and answered the question of how they felt about a major historical event (the Mexican Revolution) while it was happening.
A GENE COMMONLY MUTATED IN PSEUDOMONAS AERUGINOSA CLINICAL ISOLATES IS REQUIRED FOR BACTERIAL VIABILITY

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School of Life Sciences

Faculty Research Mentor: Boo Shan Tseng, Ph.D.
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Pseudomonas aeruginosa, a Gram-negative opportunistic pathogen that is commonly found in soil and water, forms chronic infections in the lungs of cystic fibrosis (CF) patients. In clinical settings, mutations commonly arise in the gene mucA of P. aeruginosa, which is associated with poor disease outcome in CF patients. Paradoxically, although mucA is commonly mutated in clinical isolates, our work, as well as others, suggests that mucA is required for bacterial viability. The product of mucA is the protein MucA, an anti-sigma factor that interacts with the sigma factor AlgU. When algU is deleted, mucA is no longer needed for viability. This has led to our hypothesis that the physical interaction between mucA and AlgU is essential. The goal of this work is to determine the length of mucA that is essential for bacterial viability. To test this, we generated strains with an extra copy of mucA with varying lengths. We then used allelic exchange to delete the full-length copy. Our experiments have narrowed down the minimum length of mucA required for bacterial viability. This genetic region encodes for the AlgU-interaction domain of MucA, supporting our hypothesis. While we still need a better understanding of why this interaction is needed, the discovery of the minimum viable length of mucA may potentially be used in future research to find a drug to inhibit the MucA-AlgU interaction to kill bacteria.
ARE DIALKYL-4,4’ BIPYRIDINIUM TOSYLATES AND TRIFLIMIDES TOXIC TO BACTERIA?

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Pyridinium salts are used for various purposes, including antimicrobial agents, drug delivery, dye removal from water, and dewatering of waste oil. While these salts need to be toxic enough to inhibit microbial growth when used as antimicrobial agents, they should be as non-toxic as possible for other purposes, such as drug delivery, where toxicity might lead to adverse effects. Here we investigated the toxicity of two newly synthesized classes of pyridinium salts, symmetric dialkyl 4,4’-bipyridinium tosylates and triflimides. We compared these compounds to the already established bromide compounds. We tested whether 1. the carbon chain length of the alkyl group and 2. the counterion affected the efficacy of these compounds in killing bacteria using a standard minimum inhibitory concentration (MIC) assay. We tested our compounds against four bacterial species (Pseudomonas aeruginosa PAO1, Escherichia coli K-12, Bacillus subtilis NCBI3610, and Staphylococcus aureus Newman). We found that E. coli and B. subtilis were generally more susceptible to the compounds than P. aeruginosa and S. aureus. Furthermore, within a species and with the same anion, the longer the hydrocarbon chain, the lower the MIC. When holding the hydrocarbon chain constant, triflimide compounds were the least toxic, while bromide compounds were the most toxic. In addition, 1,1’-dialkyl 4,4’-bipyridinium tosylates are generally non-toxic, because the MICs of the compounds were very high (>312.5 µg/ml). Due to their non-toxic nature, this class of pyridinium salts may be useful for drug delivery, dye removal from water, and dewatering of waste oil processes.

This research was presented at the American Society for Microbiology (ASM) 2017 Regional Conference.
Funding for this research was provided by UNLV CSUN Undergraduate Research Stipend.

NANOTECHNOLOGY FOR WATER-LESS CLEANING OF SOLAR PANELS

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

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

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

This research will be presented at The Electrochemical Society Meeting in New Orleans, May 2017.
Funding for this research was provided by the National Science Foundation under Grant No. IIA-1301726.
THE ROLE OF EXTRACELLULAR MATRIX PROTEINS IN BIOFILM FORMATION IN PSEUODO MONAS AERUGINOSA

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Faculty Research Mentor: Boo Shan Tseng, Ph.D.
University of Nevada, Las Vegas, School of Life Sciences

Pseudomonas aeruginosa is an opportunistic bacterial pathogen that is widely studied due to its prevalence in patients with cystic fibrosis. P. aeruginosa thrives in the lungs of cystic fibrosis patients due to its ability to form bacterial communities called biofilms. The bacterial cells of the biofilm live in a protective, self-produced matrix consisting of DNA, polysaccharides, lipids, and proteins. While many studies have focused on the DNA and polysaccharide components, little is known about the matrix proteins and the roles they play in the biofilm. It has been suggested that matrix proteins may play many roles in the biofilm, but to date, few matrix proteins have been identified. We previously identified 67 matrix proteins. Here we investigated the role of these matrix proteins in the ability of P. aeruginosa to produce mature static biofilms. We tested the ability of mutants that are unable to produce each of these matrix proteins to grow biofilms using a standard assay that measures total biofilm biomass. Of the 67 identified matrix proteins, we obtained mutants in 51 of these proteins. 35 of the 51 mutants had significant defects in biofilm formation. We are currently verifying that these defects in biofilm formation are not due to general growth defects, and we plan to pursue if the known biochemical functions of these proteins are involved in their role in biofilm formation.

Funding for this research was provided by the NIH NIAID grant.

EFFECTS OF LOAD CARRIAGE ON LOWER EXTREMITY JOINT PATTERNS IN CHILDREN WITH AUTISM SPECTRUM DISORDER

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Autism Spectrum Disorder (ASD) is characterized by varying levels of social and communication impairments. Evidence also suggests significant motor anomalies in children with ASD compared to children with typical development. The specifics of these motor impairments are not fully understood yet. Therefore, the purpose of this study was to analyze, lower extremity joint angle symmetry during over-ground walking in children with ASD in three weighted conditions. Data were collected on ten children with ASD where three-dimensional lower extremity gait kinematics were obtained. Subjects walked at their preferred pace over a five meter walkway under three different conditions. Fifteen trials of each experimental condition included: 1) no mass added in a backpack; 2) 7.5% body mass added to a backpack; and 3) 15% body mass added to backpack. Left and right lower extremity data were normalized to 100% of the gait cycle and analyzed on a point-to-point basis utilizing the Model Statistic procedure (α = 0.05). Results indicated that there is the least amount of asymmetry during walking without added mass (80.3±SD30.1, 65±SD36.7, 67.5±SD31.7, for hip, knee, and ankle, respectively) condition, and 3) 15% body mass added to backpack. Lesser amounts of asymmetry exist in the 15% condition (89.3±SD19.6, 70.8±SD27.9, 66.1±SD27.7, for hip, knee, and ankle, respectively) compared to the 7.5% (91.4±SD17.1, 78.9±SD20.0, 72.5±SD20.1, for hip, knee, and ankle, respectively) condition, and are similar to the values of the baseline condition. These results seem to suggest significant gait instability when a child with ASD is required to carry a school backpack under conditions similar to the 7.5% body mass condition.

Funding for this research was provided by Graduate College Rebel Research and Mentorship Program (RAMP).
IDENTIFYING GENE AND MICRORNA CONTROL OF L1HS RETROTRANSPONSON EXPRESSION IN HUMAN SOMATIC CELLS

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Retrotransposons are sequences that have the capacity to jump into new locations in the genome by reverse transcribing DNA from the RNA of itself. LINE1 (L1HS) Retrotransposon is active in the human genome, and shows especially high activity in the cancer cells. One mechanism to control transposon activity is to degrade transposon RNAs through RNA interference utilizing specific small RNAs. Our hypothesis is that there is a specific set of miRNAs and genes which are mutated or dysregulated in cancer, and thereby, results in dysregulation of transposon expression in cancer. Here we show several miRNAs that have negative correlation in expression levels with transposons in Mixed Model regression and binding motifs complementary to L1HS predicted by TargetScan and MiRanda. We also show that mutations in several genes display significant association with transposons expression levels. A few of those genes we identified are positive controls known to function in transposon control. Through statistical analysis of genomic data from cancer patients, we were able to identify strong candidates for the regulation of L1HS expression. Future work based on in vitro transposon assays in cultured cells would be necessary to further validate our candidate genes and miRNAs.

This research was presented at the National Minority Access Undergraduate Student Researchers Competition, September/October 2016.
Funding for this research was provided by 1R15GM116108.

COMPARISON OF VARIOUS COMPOUNDS IN THE PREVENTION OF CLOSTRIDIUM DIFFICILE INFECTION

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Clostridium difficile is a rod-shaped gram-positive bacterium that can exist in a vegetative or spore form. Particularly, the spore form of C. difficile can survive extreme environments such as high temperatures, harsh chemicals, antibiotics, and exposure to ultraviolet light. Because C. difficile spores are resistant, they can remain in gastrointestinal tract of patients and cause severe diarrhea once they germinate into toxin-producing cells. In recent years, Clostridium difficile infections (CDIs) are becoming increasingly common and have exhibited a rise in severity due to emerging hypervirulent strains.

In our study, we compare four different compounds’ effects on CDI symptoms in mice. Two of these are compounds were sent from the University of Tennessee (UT) to act as potential antibiotics to inhibit growth of vegetative cells. The other two compounds are synthetic bile salt analogs that were tested as anti-germinants of spores. The testing of these compounds provides a gateway into possible preventative treatments of CDI. Our results indicate that the UT compounds were unable to protect the mice from getting symptoms given 5 doses at 200mg/kg. However, the bile salt analogs were able to either reduce or prevent CDI symptoms for the mice given 3 doses at 50mg/kg. The testing of these compounds provides a gateway into possible preventative treatments of CDI.

Funding for this research was provided by National Institutes of Health (NIH).
IS THE DEVELOPMENT OF ANTIBIOTIC RESISTANCE IN PAENIBACILLUS LARVAE INFLUENCED BY PHAGE?

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Antibiotic resistance in bacteria is one of the most pressing issues of modern agriculture and human health. Paenibacillus larvae is the causative agent in American Foulbrood disease (AFB), a pathogenic bacterial infection affecting honeybee larvae. Due to prolonged use of the antibiotic oxytetracycline (OTC) by beekeepers battling AFB, the bacterium has developed drug resistance. Combination therapies have shown promise in delaying antibiotic resistance, particularly those incorporating a highly specific natural predator, the bacteriophage (phage). Our goal is to determine whether an antibiotic-phage combination therapy affects the evolution of OTC resistance in P. larvae.

After determining the minimal inhibitory concentration (MIC) of OTC, we exposed P. larvae strain NRRL B-3650 to sub-lethal antibiotic treatments with and without phages Willow and Xenia. Daily 100 µL samples were spread, in triplicate, on plates infused with the full MIC of OTC to select for resistance. Control plates contained no OTC.

Preliminary results indicate treatment groups develop OTC resistance at 120 hours. Consistent with previous findings in OTC sensitive P. larvae, plaques form, suggesting lysis of antibiotic resistant P. larvae 3650 is possible. The presence of phage Willow has not altered the rate of antibiotic resistance evolution in P. larvae 3650. These findings do not support treatment of P. larvae 3650 infections with combination OTC-phage Willow therapy. A dilution assay will quantify the number of resistant colonies resulting from phage treatments. We anticipate phage therapy will not increase the rate of antibiotic resistance evolution.

Funding for this research was provided by the NSF EPSCoR grant.

PERSONALIZED MEDICINE SURVEY: PREMED STUDENTS’ VS NON PRE-MED STUDENTS’ OPINIONS

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Personalized medicine is an increasing practice and has great potential in improving individual patient care as well as revolutionizing the health care system in Nevada. In order to envision this form of health care in the future of medicinal studies, we need to have the level of understanding and attitude students have toward personalized medicine. The study was conducted to comprehend the level of understanding premedical and non-premedical UNLV students have toward personalized medicine. In order to discover whether there is a relationship between being a premedical student and their understanding of personalized medicine. A web-based questionnaire was sent out to UNLV students in Fall 2016 consisting of 44 total questions using REDcap. Cohort specific demographic information, basic and conceptual questions regarding personalized medicine were included. Population included current +18 years old UNLV students and a total of 1,138 participates in study (N=1138). Analysis methods included reporting percentages and chi2 tests. Analytic Software SAS 9.4 was the principal component factor of analyses used for study. The results showed that pre-medical students have more prior knowledge about personalized medicine and are more interested in continuing learning about this topic. More research is warranted to study discrepancy in opinions between premed and non-premed students on personal genome availability.

This research was presented at the 2017 Nevada Institute of Personalized Medicine (NIPM) Symposium, February 2017.
EVALUATING THE ACCURACY OF THE 13CO2 METABOLIC FLUX ANALYSIS TECHNIQUE IN PURE CULTURE

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Faculty Research Mentor: Brian Hedlund, Ph.D.
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The carbon cycle is an important component of climate change models, because CO2 is an important green-house gas contributing to climate change. Understanding how microbial communities impact the carbon cycle will improve our climate change and carbon cycle models. To accomplish this task, techniques well suited for environmental studies are needed. Metabolic flux analysis (MFA) is a technique used to understand the flux of carbon (C) through the central carbon pathways (CCPs) of a cell. 13CO2 MFA is a new technique designed specifically for use on natural microbial communities; however, this method has not undergone rigorous testing with microbial pure cultures to establish its accuracy. This research will contrast the results of this technique, and the current "gold standard" 13C amino acid (AA) technique, from five different strains of Escherichia coli. Contrasting these two methods and refining the 13CO2 method is necessary to establish it as a useful tool to determine microbial communities' impacts on the carbon cycle.

This research will be presented at the 24th National NSF EPSCoR Conference, April 2016.
Funding for this research was provided by Nevada EPSCoR.

INHIBITION OF BACTERIA APPLYING NATURAL ALTERNATIVES

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According to the Center for Disease Control (CDC), over 2 million people become infected each year in the United States with antibiotic resistant bacteria. Given the increasing trend of overprescribed antibiotics for even minor infections, and the extended use in the livestock industry, it has become imperative to seek alternative methods for treatment, primarily for Staphylococcus aureus in nosocomial environments. A strain of S. aureus ATCC 29247 was exposed to determine its effectiveness as a bacteria inhibitory examining, zone of inhibition, absorbance of bacterial suspension, and biofilm formation. For this study, Tea tree oil (TTO) was the selected natural alternative. My hypothesis is natural alternatives possess antibiotic properties and can inhibit bacteria growth. The effectiveness of TTO showed promising results for bacteria inhibition. TTO concentration ranging from .10%-1.0% were effective in inhibiting bacteria growth in vitro which supports my hypothesis that TTO possesses antibiotic properties and could be potentially used as natural alternative to prescribed antibiotics.
EFFECTS OF DIFFERENT LEVELS OF CARBON ADDITION ON BIOLOGICAL INVASIONS IN THE MOJAVE DESERT

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As a major agent of global change, invasive annual species such as red brome (Bromus rubens L.) have undesired effects on semi-arid and arid lands such as the Mojave Desert in the southwestern United States. These effects include novel fire regimes, loss of native plant cover and diversity, and increasing soil erosion including generation of dust as a human health hazard and as a potential influence on the generation of power from solar energy facilities. Carbon addition, shown to reduce invasive annuals in temperate ecosystems (Blumenthal et al. 2003), is understudied semi-arid to arid environments. This research tests the prediction that the addition of carbon at various levels to desert ecosystems will reduce invasion by non-native plants by impacting them at the seed, seedling, and adult stages. The results of this research may inform future land management and restoration practices.

SPECTRALLY-SELECTIVE COPPER-OXIDE SPINEL ABSORBER COATINGS FOR HIGH-TEMPERATURE CONCENTRATED SOLAR POWER SYSTEMS

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Concentrated Solar Power (CSP) involve methods to concentrate the sun's energy onto receiver systems that generate steam, activate turbines, and consequently generate electrical power. To achieve cost-effective power generation, CSP implementation in solar-favorable geographic areas provides a competitive avenue in the market for energy production. The selection of energy-efficient materials on both highly reflective heliostats that concentrate the sun's energy, as well as absorptive receiver systems, have a large influence on the CSP energy conversion process. One significant technology for reliable high-temperature operation has been the application of durable spectrally-selective solar absorber coatings on CSP receiver systems, using materials that favor ultraviolet, visible, and near-infrared solar irradiation responsivity while limiting spontaneous thermal radiation from emittance at higher wavelengths, correlating to a reduction of undesirable energy loss through waste heat. In this work, black metal-oxide nanoparticles comprising copper cobalt oxides (CuxCo3-xO4) and copper manganese oxides (CuxMn3-xO4) are synthesized for solar absorber coating potential by hydrothermal syntheses, selected for low-cost, energy-efficient fabrication capable for bulk manufacturability. The material is deposited onto high-temperature, durable Inconel substrates by a flexible spray-coating method. To extend spectrally-selective absorbance capability, the coating surfaces are geometrically-textured using sacrificial polymer beads that are jointly implemented in the spray-coating process. These spectrally-selective absorber coatings have improved durability, measurement repeatability, and reliability by the proposed synthesis methods are considered tenable for CSP system longevity. Furthermore, process optimization is implemented for the reduction of waste byproducts, low-cost of process reactants, and ease of synthesis while producing high-purity materials.

This research will be presented at the 2017 Materials Research Society (MRS) Spring Meeting in Phoenix, AZ, April 2017. Funding for this research was provided by Nevada National Science Foundation’s Experimental Program to Stimulate Competitive Research (NSF EPSCoR) UROP - Academic Year, 2016-2017.
Abstracts

MAPPING ANTIBIOTIC RESISTANCE GENES IN LAS VEGAS SOIL

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Antibiotic resistance has become a global emergency, forcing scientists into a veritable arms race with pathogenic bacteria. Approximately 2 million people become infected with antibiotic resistant bacteria in the US each year, and at least 23,000 die yearly as a direct result of the infection. The fear of returning to a pre-antibiotic era is increasing. This study was aimed at identifying the presence of antibiotic resistance genes in soil collected in the Las Vegas area, including Lake Harriet, a winery, pig farm and Tule springs. Bacterial genomic DNA was extracted from soil samples and analyzed for the presence of resistance genes using Polymerase Chain Reaction (PCR). The genes tested were gyrA (Fluoroquinolones), lnuA (Clindamycin and Lincomycin), tetM (Tetracycline), and strA (Streptomycin). The 16S ribosomal RNA was used to verify successful isolation of bacterial DNA. Primers used were from previously published results and analyzed for binding location using NCBI. PCR amplicons were tested via gel electrophoresis. Sequence analysis for the presence of gyrA mutations was performed at the Nevada Genomic Center. Resistance genes for tetM were detected in all soils except the winery, lnuA was present in Tule springs and the pig farm only. GyrA was present in all soils but a mutation for resistance was present only in the genomic DNA from the Tule springs soil. The results from this study serve as a partial baseline map for detecting natural resistance genes in this area and a method for measuring increases in resistance.

BIOAVAILABILITY OF MINERAL-BOUND IRON TO A SNOW ALGAE COMMUNITY WITH IMPLICATIONS FOR EARTH’S ALBEDO

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Snow algae thrive in low-nutrient snow and ice environments globally [e.g. 1-2]. High-density blooms of these pigmented microbes significantly lower the albedo of the snowpack – whose melting could lead to changes in freshwater availability and sea level [e.g. 3-4]. However, our understanding of how these microbial communities obtain micronutrients in an oligotrophic environment is limited. We hypothesize that direct and indirect interactions between snow algae and aeolian mineral dust play a role in micronutrient acquisition. We are evaluating the bioavailability of iron in particular, due to its importance in cell processes such as photosynthesis and respiration [e.g. 5]. In this work, a consortium of snow algae Chloromonas brevispina and bacteria is grown in media containing iron in aqueous or mineral forms to explore sources and mechanisms of iron uptake. Fe-bearing minerals used include naturally occurring forsterite and pyrite, and synthetically derived nontronite and goethite. Experiments are conducted in triplicate with abiotic controls. Culture growth and activity are monitored based on cell (bacteria and algae), ion (Fe, Mg and Si), pH, and siderophore concentrations over time. Growth and mineral dissolution in experiments incubated with forsterite exceeds that of the operationally defined control. Results will provide a better understanding of how snow algae communities can obtain micronutrients in oligotrophic snow environments and may help predict the growth of albedo-altering snow algae blooms.

This research was presented at the the Astrobiology Science Conference (AbSciCon, June 2016), the American Geophysical Union (AGU) Fall Meeting (December 2016), the UNLV Geosymposium, the UNLV Office of Undergraduate Research Showcase (November 2016), the UNLV Research Experience for Undergraduates, and the Biosignature Preservation and Detection in Mars Analog Environments Conference (May 2016).

Funding for this research was provided by NSF EPSCoR RISE and HoP Scholarship, Nevada NASA Space Grant UROP Scholarship, CSUN Research and Development Scholarship, NSF BIO-REU, and NASA EPSCoR.
The ability to respond to environmental stress is critical to bacterial cell survival. These stressors include nutrient and resource depletion, UV damage, and oxygen radicals. In *Bacillus subtilis*, previous work from our lab has demonstrated that the transcription-coupled repair (TCR) factor, Mfd, enables the generation of mutations in times of stress. However, additional roles of Mfd, extending beyond TCR, have yet to be discerned. Here, we demonstrate the novel role of Mfd as a protective agent against reactive oxygen species.

Reactive oxygen species (ROS) are characterized as chemical compounds that contain one or more unpaired electrons such as superoxide, hydroxyl, and hydrogen peroxide (Snyder et al., 2013). In *B. subtilis* the Base Excision Repair (BER) pathway involves a series of proteins, implicated in the repair of damage caused by ROS. To understand the interplay between Mfd and BER, we further examined the dependency of survival and the generation of mutations in the BER gene that codes for the protein MutY.

We subjected cells to the oxidants tertbutyl-hydroperoxide (TBH) and Diamide and measured survival. We also used our lab’s established system for assaying the generation of stationary phase mutations. Briefly, cells that are auxotrophic for arginine, methionine, and leucine are grown to stationary phase, exposed to TBH for the two-hour interval, and then plated on minimal media lacking one of these essential amino acids. Over nine days, the revertant colonies are tracked and recorded.

Our results showed that Mfd provided a protective role against oxidative damage in *B. subtilis*. These studies support the idea that Mfd mediates DNA damage repair by the BER system. Finally, we speculate that Mfd protects against oxidative damage to proteins, alluding to a role in cellular function and activity.

This research will be presented at the Northwest Biomechanics Symposium, May 19-20.

Funding for this research was provided by Graduate College Rebel Research and Mentorship Program (RAMP).
ANALYSES OF NOVEL TRANSPOSABLE ELEMENT INSERTIONS IN CANCEROUS GENOMES

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Transposable elements (TEs) are DNA sequences that can change their locations within a genome via either a “copy and paste” or a “cut and paste mechanism”. TEs make up approximately 44% of the human genome. Because of their large genetic presence and high mobility, TEs can often become sources of genetic diversity. We especially observe a higher presence of TEs in genomes sequenced from cancerous tissue, which leads us to believe that there are dysregulatory mechanisms that allow TEs to replicate and mobilize more easily. In this study, we identify and analyze novel TE insertions in both cancerous and normal tissue in 914 patients with various types of cancers. We utilize a sequence kernel association test to test the effect that somatic mutations in various genes have on the frequency of TE insertions in cancer genomes. We have identified about 100 genes showing statistically significant correlations between the presence of mutations and the quantity of TE insertions in the overall genome. In addition, we have shown that L1HS, which is known to be active in the human genome, is moving at higher rates in our patients than TEs that are not active. We also demonstrate that the rate of TE insertions in cancer patients is not related to the patient’s age, sex, cancer stage, and use of radiation treatment. Our results aim to further explain the role of mutations as dysregulators of TEs as well as gain a better understanding on the locations and identities of TE insertions.

This research was presented at the Spring 2016 Undergraduate Research Forum and the Nevada Institute of Personalized Medicine 2016 Retreat.
THE INTERACTIVE EFFECTS OF PERFECTIONISM AND SOCIOCULTURAL IDEALIZATION OF THINNESS ON DISORDERED EATING SYMPTOMS

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The idealization of thinness is ubiquitous in Westernized cultures; however, only some females develop disordered eating symptoms. Identifying risk factors that influence disordered eating in the context of sociocultural idealization of thinness is important for elucidating individual differences. Perfectionism is a key personality trait that may intersect with sociocultural effects (e.g., perceived pressures for thinness and/or thin-ideal internalization) to heighten vulnerability to disordered eating. The current study investigated 90 female college students from a large Southwestern university. The Multidimensional Perfectionism Scale (MPS) assessed two facets of perfectionism: personal standards and concern over mistakes. The Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ) assessed perceived pressures for thinness and thin-ideal internalization. The Eating Disorder Examination Questionnaire (EDE-Q) assessed disordered eating symptoms (i.e., body weight and shape concerns, eating concerns, dietary restraint). Perfectionism and sociocultural influences interacted to predict individual differences in disordered eating, but notably, the interaction patterns differed across the two sociocultural indicators. Females with high levels of perceived pressures for thinness, and high levels of perfectionism (concern over mistakes or personal standards), reported the highest levels of disordered eating symptoms. Females with high levels of thin-ideal internalization exhibited elevated levels of disordered eating, irrespective of perfectionistic tendencies (e.g., personal standards); however, low thin-ideal internalization and low personal standards were predictive of the lowest levels of disordered eating symptoms. Overall, findings highlight the importance of exploring the intersection between non-specific transdiagnostic risk factors (e.g., perfectionism) and disorder-specific risk factors (e.g., sociocultural idealization of thinness) for understanding individual differences in disordered eating symptoms.

This research will be presented at the Western Regional Honors Conference (April, 2017) and the Western Psychological Association (April, 2017).

LONG-LASTING MEMORY FOR MUSICAL BEAT IN OLDER CHILDREN, BUT NOT YOUNGER CHILDREN

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While listening to your favorite song, do you find yourself tapping or clapping along to the music? Previous research has suggested listeners perceive a beat (quasi-isochronous pattern of prominent time points) from regularly occurring events in the musical surface, and then sustain this percept once it is inferred. While there is extensive research in children's ability in perception of beat, there is little research in children's ability to sustain an internal percept of a given beat. In our study, children ages 4 to 9 listened to a musical excerpt that unambiguously induced one of two beat patterns, followed by an ambiguous phase where children heard a rhythm that could match either beat pattern. Finally, during a probe phase, children indicated whether or not an overlaying drum sound matched the stimulus. To test how long children can internally sustain an induced beat in absence of disambiguating stimulus information, the duration of ambiguous phase varied from 0-14 seconds. Results show the oldest children (age 8-9) accurately matched the probe with the induced beat, regardless of the ambiguous phase duration. By contrast, the younger children did not perform above chance, regardless of the length of the ambiguous phase. Overall this suggest by age 8-9, children have developed long-lasting memory for musical beat, but younger children are unable to sustain the beat when the physical stimulus is beat-ambiguous.
From the Treaty of Waitangi to the present day, the indigenous Māori of New Zealand faced affronts to their tikanga (customs, traditions), but from the late 1970s onwards, the Māori cultural renaissance saw the resurgence of Māori identity. Movement to cities, however, caused urban Māori to realize, by their pepeha (self-introduction, identity in relation to nature) alone, they lacked in their identity as tangata whenua (people of the land). Assessing the bicultural nature of New Zealand, and those individuals with mixed Māori heritage or simply exposure to Māori beliefs, re-visions nature and motives, narratives behind environmental conservation. The Māori make New Zealand bicultural. They urbanize alongside fellow Kiwis (colloquial term for all New Zealanders) collectively possess a keen awareness of the environment and understand the need to conserve it better than most Westernized peoples because of these Māori influences. The test of conservation over further degradation of the environment unfolds in the city, and how individuals understand the urban versus the natural world matters. This project draws from my 6-month participant observation and study abroad in New Zealand. I present my project in two parts: a strictly academic portion and a section of my own creative nonfiction essays. The unique way that Māori (and Kiwis) render their environment deserves attention and artistic communication, particularly in regards to Western American readers. Presenting these findings as creative nonfiction encourages Westerners to re-evaluate urban spaces and will to conserve by tweaking their perception and examining (un)conscious social and physical constructions of nature.

Major Depressive Disorder (MDD) has a lifetime prevalence of about 10%, and has been predicted to become the leading cause of disability in the coming decades. Despite its prevalence, the causative agents have yet to identified. Furthermore, there is a lack of understanding regarding the complete pathophysiological mechanism underlying Major Depression. However, novel investigations into the spectrum of symptomatic subpopulations of people with MDD have helped to create a more complete narrative of this multidimensional disorder. Of interest to our study is the subpopulation of people with MDD that also suffer from sleep dysregulation. Studies have shown that these sleep disturbances are most likely due to changes in slow wave sleep (SWS). Thus, we propose Prostaglandin D2 (PGD2) as a novel treatment for MDD in subpopulations that experience sleep dysregulation. PGD2 is a multifunctional protein, but of interest to this study is its role as a potent endogenous somnogen. PGD2 has been shown to preferentially induce SWS in a dose dependent manner by stimulating receptors on the basal forebrain, followed by an accumulation of extracellular adenosine. Previous studies have shown that total sleep deprivation is an effective, and relatively fast acting, treatment for about 60% of people with MDD. The proposed therapeutic mechanism of this treatment is an increase in rebound SWS, which is mediated by astrocytic adenosine signaling. Therefore, PGD2 should provide antidepressant effects, via an increase in SWS, which is dependent upon astrocytic adenosine signaling.
**MURINE MODEL OF SOCIAL ISOLATION ALTERS ASTROCYTE MORPHOLOGY**

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Glial cells are both the most abundant cells in the brain and the least studied cells. Originally these cells were considered to be the support cells of the brain. Recent research has shown that each of the different types of glial play an important role in both brain and behavior. Astrocytes are positioned to play an important role in behavior because of their tight coupling with synapses termed the ‘tripartite synapse.’ Our lab has previously shown that astrocytes are important for signaling to neurons in the control of affective disorders. Building upon this we hypothesize that astrocytes will also play a critical role in behaviors relating to social isolation (SI) and depressive behaviors. Using a murine model of social isolation we will measure astrocyte end-feet morphology in relation to the onset of depressive behaviors. To accomplish this, mice were socially isolated post weaning for a duration of 2 weeks, followed by behavioral assessments including the Forced Swim Test and Social Interaction. SI mice were compared to a control group in social environments. Immunohistochemistry on coronal sections of the brain followed. Using the astrocytic specific marker GFAP and fluorescence microscopy we later measured the cell density and branch order of astrocytes. Alterations in the volume of astrocytes following social isolation suggests that astrocytes are an important modulator in development of depressive behaviors. These findings indicate that developing abnormal tripartite synapses may contribute to behavioral impairments and they offer insight into the detriments of social isolation in the brain.

**CHILDREN SYNCHRONIZE THEIR FINGER TAPS TO RHYTHMS THROUGH ITERATED REPRODUCTION**

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Rhythm is ubiquitous to human communication. The ability to speak with a native accent or play music depends on the listener’s ability to perceive, remember, reproduce and synchronize with rhythmic patterns. Previous research has shown that rhythm perception and production appear to be constrained such that longer intervals are related to shorter intervals by simple integer ratios such as 2:1. In a recent study, participants listened to a rhythm that had a non-integer ratio of intervals, and on each successive trial, they were presented with the iteration of the rhythm that they had tapped on the previous trial. Results showed that participants’ tapping converged onto integer ratios. No one has investigated whether children’s tapping also converges on integer ratios when listening to non-integer rhythms. In the proposed study, children ages 4- to 9 years will listen to a musical rhythm and synchronize to it by tapping their finger. On each trial, they will be presented with the tapping iteration they produced on the previous trial. If preference for integer ratios changes across development, then we would expect older children’s (7-9 years) tapping to converge on integer ratios of the rhythms more quickly, compared to younger children (4-6 years). In addition, it is possible that younger children have not developed preference for rhythm integer ratios, and thus will not show any convergence after successive iterations of the rhythm. Results will have implications for the development of rhythm processing and will pave the way for subsequent studies of rhythmic tapping in children.
PRODORAL ALTERATIONS OF SLEEP ARCHITECTURE IN A MURINE MODEL OF MULTIPLE SCLEROSIS

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Multiple Sclerosis (MS) is a debilitating motor disease that affects the central nervous system (CNS) of 2.5 million people worldwide. Messages in the CNS are sent by neurons along connections called axons. To increase efficacy of transmission, axons are covered with myelin to help propagate action potentials. Research has mainly focused on the motor, visual, and mood symptoms of MS, little has been done to study the role sleep and arousal states plays in the disease. Addressing this, we will be studying the relationship of sleep and the mouse model of MS called experimental autoimmune encephalomyelitis (EAE). Using this model, we hypothesize that changes in sleep quality and duration will decrease as the disease model progresses. Mice are implanted with electroencephalogram (EEG) and electromyography (EMG) electrodes. Following acclimation, baseline 24-h recordings are made. Sleep, REM sleep, and wake are determined by an experimenter blind to experimental condition. On the baseline day, we compute the amount of each state as percentages and the duration of individual sleep and wake episodes. We then measure transitions between NREM sleep and REM sleep during the light phase. All EEG data are analyzed by normalizing each data point to the average power of the EEG from 0.5 to 40 Hz and by normalizing each data point (+12 h, +36 h, +84 h, +108 h) to the corresponding data points. Findings from this study can then be translated into how altered sleeps impacts MS in people.

TEACHING VOCABULARY TO COLLEGE STUDENTS WITH INTELLECTUAL DISABILITIES AND AUTISM

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Our research endeavors centered on using a graphic organizer in the process of teaching students with intellectual and learning disabilities to memorize vocabulary words for a Kinesiology course. There were exactly four undergraduate researchers and three volunteer students. Our research was conducted to show an alternative technique to memorization and learning through visual aids and verbal prompting. Each student subject was taught a series of ten vocabulary words and definitions using flashcards as a visual aid. A graphic organizer containing slots for the word, definition, a picture associated with the word to be learned, and a sentence utilizing the word, was later used to further elaborate on the learning process. Each student was taught individually by one researcher and then tested on their memorization of each word while a second researcher watched and recorded data.

We hope that this type of research can show, in detail, how students with learning and intellectual disabilities can be taught to remember data based on teaching skills and methods. We believe that everyone has the right to further their education and learn new information. Hopefully, our research has given an opportunity for growth to these particular students on campus.
THE INTERPLAY BETWEEN GABA α2 AND DOPAMINE RECEPTORS ON ADDICTION: AN ALTERNATIVE ADDICTION HYPOTHESIS

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Addiction continues to be a lifelong battle for those inflicted. While many hypotheses have been developed in understanding the neuropathology of addiction, little progress has been made in developing a possible treatment. It is known that addiction involves changes in the release of dopamine from the ventral tegmental area into the nucleus accumbens. In addition to this prominent dopamine hypothesis of addiction, many lines of evidence point to a role for gamma aminobutyric acid (GABA) neurotransmitter signaling. In particular, recent studies have linked mutations in the GABAA receptor α2 subunit to alcoholism and polysubstance abuse. Our studies have shown that the α2 subunit of GABAA receptors is highly expressed in the nucleus accumbens, a structure in the “reward circuit” that contributes to addiction. We are examining the localization of α2 subunit containing GABAA receptors in the nucleus accumbens. We are particularly interested in the expression of the α2 subunit on distinct populations of cells expressing either D1 or D2 dopamine receptors. We will use immunohistochemistry and confocal microscopy to examine the expression and colocalization of the α2 subunit of GABAA receptors with markers for D1 and D2 receptors. These studies are expected to reveal how GABAA signaling can modulate the dopamine reward circuitry, and ultimately how GABAA signaling in the nucleus accumbens contributes to the development of addiction.

IDENTITY, RESILIENCE, AND CAREER COMMITMENT IN RELATION TO SUCCESS IN STEM FIELDS

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Gender inequality in the United States can be seen in science, technology, engineering, and math (STEM) fields. For instance, women are lacking in positions of authority in medicine, and both genders report different experiences while working within healthcare. In order to better understand such experiences, we need insight into what makes one successful in the field. Prior research suggests that identity, resilience, and career commitment may be associated with career success. For example, identity forms from actively considering various career options and resilience can assist in overcoming barriers. Examining these constructs may enhance our understanding of success in STEM and provide insight to aid us in supporting women pursuing careers in STEM. Thus, the current longitudinal study examines these factors in STEM undergraduates participating in a health outreach program. Participants will be surveyed and interviewed to assess their identity development, resilience, and career aspirations across two time points. IRB approval for this project was recently obtained and data collection is currently underway. It is anticipated that students’ identity and career commitment will increase over time, and successful students will report higher overall resilience. We anticipate these results will help answer whether STEM students’ identity development, resilience, and career commitment, may help us understand success in STEM. Results from this study could provide insight into what STEM success may lead to, what makes a STEM professional successful, what may be specific to women’s success in STEM, and helping to address gender inequality in STEM.
DETERMINING THE LOCALIZATION OF 5HT2A AND 5HT2B RECEPTORS LEADS TO ENHANCED UNDERSTANDING OF 5HT RECEPTOR AGONISTS AND THEIR BEHAVIORAL EFFECTS

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Serotonin (5-HT) is a neurotransmitter responsible for mood regulation. Serotonin receptors are G protein-coupled receptors (GPCR) involved in modulation of both excitatory and inhibitory neurotransmission. Both the 5-HT2A and 5-HT2B receptor subtypes are distributed throughout the brain, primarily in the cortex, limbic structures, and basal ganglia. While 5-HT receptors are known to mediate the actions of psychoactive drugs, more studies need to be done to determine the localization of these receptors at specific types of synapses. This information will clarify the mechanisms by which 5-HT receptor agonists produce behavioral effects.

We plan to examine the expression of 5-HT2A and 5-HT2B receptors in both excitatory (glutamatergic) and inhibitory (GABAergic) terminals, as well as in surrounding astrocytes. We will accomplish this with immunocytochemistry and confocal microscopy techniques, followed by quantification of co-localization.

We suggest that detailed localization of 5-HT2A and 5-HT2B receptors will enhance our understanding of their actions. With the advent of new 5-HT2 subtype selective drugs, and their potential as antidepressant therapies, these studies are expected to provide important information about mechanisms of action to inform further antidepressant drug development.

ASSOCIATIONS BETWEEN PERSPECTIVE-TAKING, RACIAL BIAS, AND SOCIAL ACTIVISM

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The United States is facing high scrutiny over the disproportionate killings of African Americans by law enforcement. Reports on police shootings from 2015 indicate that Black men are seven times more likely to be fatally shot, when unarmed, than White men. In response to this controversy, social movements such as Black Lives Matter (BLM) have been formed to raise awareness and advocate for change. Support of BLM has been quite polarizing. Perspective-taking is a potential solution to increase the endorsements of social movements such as BLM. Research shows that perspective-taking has an effect on (a) people’s ability to perceive discrimination towards the oppressed groups and (b) their likelihood of supporting policies that help members of oppressed groups. The current study builds on this body of prior research by examining whether a perspective-taking exercise can reduce implicit and explicit levels of racial bias, which should in turn enhance support towards social movements such as Black Lives Matter. The study consists of two sessions separated by one week. In Session 1, participants will complete several assessments including the Toronto Empathy Questionnaire, the weapons/harmless objects implicit bias task, the Youth Inventory of Involvement as well as the demographic, sociopolitical, and explicit bias measures. Session 2 will consist of a perspective-taking task followed by the same measures conducted in Session 1. The IRB recently approved the current study and data collection is in progress. We hope encouraging findings from this study may influence future law enforcement interventions.
INVESTIGATING PERCEPTION OF METER IN DIVERSE POPULATIONS THROUGH ONLINE TESTING

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Humans tap, clap, or move to the beat in music with ease. Perception of metrical structure may allow individuals to synchronize with the music in complex ways over longer periods of time, as in partner dances or musical improvisation. Musical beats are structured hierarchically according to the meter, which results in the perception of stronger and weaker beats. Previous work examined whether musically trained and musically untrained individuals perceive these hierarchical musical structures by presenting them with metronomes that matched or mismatched the music at one or two metrical levels and asking them to provide goodness-of-fit ratings. Listeners gave the highest fit ratings to metronomes that matched the music at two levels, suggesting they perceive the metrical hierarchy. Like most studies of music cognition, these findings are limited to a population of North American, college-age listeners, however our goal is also collect data from individuals with diverse listening experiences (e.g. dancers, musicians, different cultural groups, etc.) so that findings can be generalized across human listeners more broadly. We developed an online version of the above study that administered a headphone test and captcha verification to ensure that participants were fully engaged in an audio experiment. We replicated prior results with an on-line pool of local, university-age subjects, suggesting that high quality data can be obtained outside a traditional lab environment using an on-line auditory experiment. Future data collection will focus on targeting specific populations outside of the college-age, American demographic.

This research was presented at the Office of Undergraduate Research Fall Showcase (November 2016).

BAD BUTCHERS

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When archaeologist think about cut marks they think of identifiable or information rich bones such as long bone ends, mandibles, and metapodials. Archaeologist prefer these bones because they can identify the bone and it tells them age, sex, and taxon. By only looking at those bones they miss out on a plethora of information. When looking at cut marks you also must look at long bone shaft fragments, vertebrae and ribs. These bones are not always identifiable but they provide quite an abundance of information. Since they are unidentifiable they are usually excluded from research. By excluding them you are missing information that is critical to one’s research and only getting half of the story from the cut marks. I try to prove this with faunal remains from a bronze age assemblage from central Anatolia Kültepe.
A BIOARCHAEOLOGICAL ANALYSIS OF VERTEBRAL PATHOLOGY AT NON NOK THA

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While a transition to agriculture is usually attributed to a decline in overall population health, Southeast Asia has often been the exception to this rule. Using bioarchaeological techniques, this study analyzes vertebral pathologies in the lumbar region on a collection of ancient human remains from Non Nok Tha, an Iron Age site located on the Khorat Plateau in Northeastern Thailand. Research focused on skeletal data collection of various pathological patterns affecting lumbar vertebrae (osteoarthritis, Schmorl's nodes, vertebral collapse); data was used to make inferences regarding vertebral health, lifestyles, and quality of life experienced within this society. Overall, very little vertebral pathology was observed within this collection. Males were slightly more likely to display vertebral pathologies than females; however, there is not a hugely significant correlation between vertebral health and sex. It seems that age is more likely affecting development of osteoarthritis than sex. Additionally, individuals with more severe osteoarthritis were dying earlier, around middle age. The findings of this study support current literature in the field regarding the correlation between age and vertebral pathology as opposed to occupational stress within agricultural transition in Southeast Asia.

THE RELATIONSHIP BETWEEN PHYSICAL AGGRESSION AND SPORTS PARTICIPATION

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Aggression is the intentional infliction of physical or psychological harm on another person that strives to avoid this harm (Krahé, 2013). Aggression is often associated with many athletic endeavors. To date, little work has been done to explore differential rates of aggression when comparing athletes to non-athletes. Other differences between athletes and non-athletes have been noted, however. For example, self-esteem tends to be higher in athletes as a function physical fitness and elevated social status (Reinking & Alexander, 2005). Additionally, athletes display higher levels of optimism, perseverance, hope, and resilience (Guillén & Laborde, 2014). Athletic identity is a part of one's self-concept regarding how that individual perceives of themselves as an athlete and how that role can affect the things around. Coaches and fellow teammates may influence one's athletic identity, which may influence how they perform in their sport. This can affect an athlete's perception and reaction time (Samuel & Tenenbaum, 2011). Athlete identity may also influence how an athlete behaves off the field. For example, athletes report having more sexual partners as well as higher rates of alcohol and drug consumption. Elevated levels of self-esteem can lead to reckless behaviors that can have a negative effect on them in the long-term (Wetherill & Fromme, 2007). Some of these influences may be attributed to the increased exposure of athletes to competitive individuals and environments (Bekiari et al., 2015).

Our study examined the relationship between sports participation and aggression, using 133 respondents that participated in exchange for course credit. Participants completed the Buss-Perry Aggression Questionnaire (AGQ) to assess their aggression on four dimensions: physical aggression, verbal aggression, anger, and hostility (Buss & Perry, 1992). Additionally, participants answered questions regarding their involvement in sports, their attitude towards sports, and standard demographics.

Individuals that self-identified as athletes were no more aggressive than non-athletes, as measured by their overall score on the AGQ. However, when athletes were compared to non-athletes regarding physical aggression, a statistically significant difference emerged ($F (2, 123) = 6.233, p = .003$).

Therefore, it appears that being involved in athletics does not suggest whether a person will be more aggressive or not, however it does seem predictive of physical aggression. This suggests a need for additional research in this area to explore causality; specifically, whether athletic participation increases physical aggression or whether more physically aggressive individuals are drawn to athletic competition.

This research will be presented at the Western Psychological Association (WPA) Convention in Sacramento, CA, April 2017.
WHAT YOU SEE IS NOT WHAT YOU SEE

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Subliminal messaging is believed to manipulate human’s behavior. Commercial industries have been using it in advertisements intentionally by inserting sexual content without concern for its influence on viewers. Due to this misuse of subliminal messaging, I’d like to use subliminal messaging to influence viewers in a positive way, especially conveying moral values in order to prevent moral decadence. Additionally, I’d like to encourage our community and others to utilize subliminal messaging for a better purpose. In this research, embedding will be used in posters. The embedded images will be displayed to viewers, and questions will be provided to find out if the messages were actually conveyed. Also, images and questions will not be related to moral values so that viewers cannot guess the subliminal messages. If moral values are perceived through subliminal messaging, then the result will be said that subliminal messaging can be used to influence people positively.

Funding for this research was provided by CSUN Undergraduate Research Stipend.
IJJI IMMIGRANTS JUSTICE INITIATIVE

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In the United States, there is a high rate of asylum seekers from the countries of Honduras, Guatemala, and El Salvador. The aim of our research is to find out why the demand for asylum from these countries is so high and what hardships the asylum seekers face. This research is for the purpose of assisting the community-based Immigrant Justice Initiative. We are investigating these causes by using keyword searches in academic databases to find an initial wave of peer reviewed data. From there we will review the references for these articles to find additional articles through snowball sampling. We will also collect qualitative data from various news sources. Common themes that we have found in asylum applications include gang violence, domestic abuse, economic hardship, and political corruption.

MMA WAGES: THE DETERMINANTS OF UFC FIGHTER’S SALARIES

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Mixed Martial Arts, commonly referred to as MMA, is one of the fastest growing sports today with the world’s largest promotion company, The Ultimate Fighting Championship (UFC), being operated in Las Vegas, Nevada. Since its inception in 1993, the UFC has gained an international following, with the second most viewed event occurring just last year, with 4.3 million viewers. As with other sports associations, the question of athlete pay is consistently relevant. Surprisingly, there is little to no academic research into the salary determinants of MMA fighters. This is where this paper hopes to fill the void. The goal of this paper is to find the determinants of MMA fighter’s salaries, more specifically UFC fighters, by controlling for variables such age, gender, career wins and losses, striking accuracy, etc. The model uses a traditional Mincer (1958) wage equation framework as well as applying hedonic pricing methods, pioneered by Rosen (1974), to variables that can be decomposed into constituent characteristics, such as career record. The results indicate that age, successful strikes thrown, wins by knockout, wins by decision, losses by submission, and losses by decision are strong determinants of UFC wages. The model uses data on fighter statistics collected directly from the UFC and FightMetric LLC, as well as salary data collected from the Las Vegas Athletic Commission, California State Athletic Commission, and other sources that disclose wage information.
THERE’S NO PLACE LIKE HOME(LESSNESS)

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This research aims to locate homeless services throughout the greater Las Vegas metropolitan area, discover corresponding resources, and expand upon such resources in a rational, centralized manner. To develop a thorough analysis of area homelessness on a social level, our research will examine the area’s primary facilities serving the homeless population, categorize them, and dissect corresponding components and available data. Food banks, veteran services, women’s centers, career services, and shelters primarily cater to specific needs in separate locations, with narrow, particularized foci. Consequently, they often fail to account for logistical and social boundaries that homeless individuals frequently encounter, such as transportation. Creating an all-encompassing homeless center, connected to UNLV, would enhance community services by accumulating resources available at each center in one accessible location.

From an anthropological perspective, the separation between biological and social needs depletes the unifying and beneficial nature of communitas. Stripping away integral human components discourages the rebuilding process and overall environmental synergy. To capitalize on both primary and secondary needs, the establishment of this center will better serve the marginalized homeless population of the area and the larger scope of humanity, in addition to encouraging the growth of opportunities for work and volunteering.

ENVIRONMENTAL CRISIS AND SUSTAINABILITY IN THE 21ST CENTURY

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Today there is need, like never before in human history, to create a sustainable future for modern society, and this process begins with education. Currently, UNLV lacks broad-range, multidisciplinary environmental crisis and sustainability pedagogy. We propose general education, core academic coursework to meet this need. Curriculum content, implementation steps, as well as barriers to actualization will be included and addressed.

We propose that “Environmental Crisis and Sustainability in the 21st Century” be a new course offered as a core academic requirement for all undergraduate students. Coursework would include lectures, guest speakers, recycling center and community garden hands-on experience, as well as community involvement. Engaged and inspired students would actively participate, while receiving practical experience, academic knowledge, course credit and marketable job skills. We also propose that measurable data be collected in the form of in-class surveys and course evaluations. Additionally, students would continue to be tracked annually post-class and post-graduation, via email and telephone surveys, as part of a longitudinal study. Environmental crisis and sustainability education is important, as it increases environmental and ecological awareness and is associated with future implementation and expansion of sustainability efforts. Multidisciplinary, environmental crisis and sustainability education helps fill the aforementioned need, while maintaining UNLV’s preeminent position as a research and academic leader. Programs of this nature would be influential to and adopted by local communities beyond academia, while providing sustainable outcomes to 21st century environmental and ecological issues.
In 1968, a group of students and allies got together peacefully to organize a protest, and in turn were attacked by their own government and massacred. This study takes into the account the events that occurred on that October night and compares it to recently declassified CIA memos that describe the involvement of the United States government, the Mexican government, and Mexican military forces. These redacted documents by the United States government lead to potential causes and the people responsible for the attack.

The design of the study was to find relevant information about the causes of the massacre as well as present viewpoints from the government, outside sources looking into the events taking place in Mexico, and the eye witness report of a teacher present during the massacre. There are many findings in regards to potential thought processes of the different governments (US and Mexico). The impact the riots would have on the Olympic Games being held in Mexico City that same summer and how that would affect the safety of people travelling for the games. It is easy to see that Mexico takes precautions to cover up their military involvement in the massacre itself, and trying to keep certain information behind closed doors. However, there is much evidence through the same sources that the United States had the knowledge of the civil unrest happening in Mexico and sought to intervene as they saw tensions increase in their neighboring country.
DON'T BE SALTY

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With increasing global population and temperatures rising due to anthropogenic changes, there is a rising universal need for freshwater. Desalination (the process of removing salt ions from water) is a developing method of obtaining fresh water from areas where it would otherwise be unavailable. The traditional methods of desalination require large amounts of energy and are not cost effective. We hypothesize that desalination using graphene membranes would be more efficient, cost effective, and use less energy than more traditional methods. To test our hypothesis, our team compared data from multiple sources, including research done at UNLV. Our conclusions lead us to believe that desalination using graphene is indeed more efficient than traditional methods, and can be more economically feasible once technology develops in the future.

BATTLE OF THE SEXES: DISPARITIES IN HEALTH AND NUTRITION AMONG MEN AND WOMEN

Stefania Goga\textsuperscript{1}, Tori Roberto\textsuperscript{2}, Mariely Febeles\textsuperscript{3}, & Ahmed Coulibaly\textsuperscript{2}
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Faculty Research Mentor: Levent Atici, Ph.D.
University of Nevada, Las Vegas, Department of Anthropology

The purpose of our research is to determine if a correlation between diet and gender exists in the United States and what effect, if any, does this variation in food consumption have on overall health. While the links between diet and health are well documented, the connections between diet, health, and gender have not been studied simultaneously. We used statistics on obesity, heart disease, diabetes, and lifestyle as a way to measure the health of men and woman. We also created a survey to gather data on individual eating habits as well as researched statistics on male and female dietary behavior to determine if both variations in diet and health could be linked to gender. Our study found that there are differences in diet between the sexes and that these differences correlate with differences in overall health.
SOLDADERAS AND THEIR ROLES IN THE MEXICAN REVOLUTION

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¹Department of Teaching and Learning
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Faculty Research Mentor: Miriam Melton-Villanueva,
Ph.D.
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This project focuses on the roles of soldaderas, female soldiers, during the Mexican Revolution. The goal is to understand and emphasize the importance of women in aiding, feeding, and healing the men who fought during the Mexican Revolution. This research draws upon primary sources such as illustrations, pictures, newspapers and first accounts. Some of the sources include pictures and newspaper articles taken from American periodicals and Spanish newspapers such as La Prensa. By observing and analyzing these sources we can deduce that Mexican women played an important role in the revolution as they served as nurses for the wounded, cook food for the soldiers, maintain households, and fought in battle themselves.

NAVIGATING HIGHER EDUCATION AND RESOURCES FOR UNDOCUMENTED/DACA STUDENTS

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This study examines how undocumented and DACAmented students navigate the higher education system, despite their marginalized identity and lack of legal status. This study further details the challenges these students face, how some overcome them and further this study has collected resource so the institution can create a database for such marginalized students. This project matters because these students don't have access to resources that could help make the college experience both safe and progressive. These undocumented students remain at odds against a new political environment and the lack of protective policies is hostile and detrimental to their lives and even their families. With Nevada having one of the largest undocumented populations this issue takes precedence because these individuals deserve an educational environment that is equitable and unique to their intersectional lives. We used a less mainstream methodology called: Community based participatory research which privileges the voices of these undocumented/DACAmented students to understand their most salient needs. Further, this research due to time constraints and availability, our strategies for collecting data consisted of keyword searches to collect resources for this population at UNLV and quota samples. Lastly, our research is tremendously significant--especially due to the political climate we are currently experiencing-- because resources are already limited for these hard working students but our research and data collection serves to help these students and most importantly institutionalize resources to help them succeed in higher education.
DOES HAVING CHILDREN MAKE CENTS? AN ECONOMIC ANALYSIS OF THE GENDER PAY GAP IN THE UNITED STATES

Jeffrey Wheble
Department of Economics

Faculty Research Mentor: Djeto Assane, Ph.D.
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This paper analyzes potential key sources for the persistent wage gap between men and women in the United States using data from the 2014 American Community Survey (ACS). Previous literature has addressed race, marital status, and the usual skills variables such as education and experience. Research by Goldin (2014) suggests that the wage gap is made up of factors besides skills, since it persists despite a substantial convergence in the last several decades. Work done in the UK by Blau and Kahn (2000) suggests that women may even see greater returns on education than men. This analysis, while including skill factors, focuses primarily on the differential impact of children on women and men, and how the wage gap decomposes into the explained gap, which is subject to skills convergence, and the unexplained gap, which is in part formed by discrimination and thus more difficult to address. The implications of this gap are discussed, and informed policy options are considered.

FOOD WASTE AT HOME

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Faculty Research Mentor: Levent Atici, Ph.D.
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Food waste takes place across the entire supply chain. It happens on farms, at supermarkets, in restaurants, and at homes. However, this project focuses primarily on local food waste. Despite the vast research on how to prevent local food waste, the problem of local food waste is still at large. Our goal for this project was to find, what we believe to be, the most effective way to reduce local food waste. We went about making some progress by analyzing a variety of field datas that have been tested in the past. While most of the data are local, we will be using datas that are national to back up our claim. By analyzing the field datas, we would be to determine which method is the most effective to reducing local food waste. This research aims to spread awareness on the topic of local food waste and come up with a tangible solution to alleviating this problem.
BUSINESS & LIBERAL ARTS II

BEEF: IS IT WORTH IT?

Vanessa Haroan
Department of Psychology

Faculty Research Mentor: Levent Attici, Ph.D.
University of Nevada, Las Vegas, Department of Anthropology

Today’s present day society is so focused on gaining things without thinking about the effects it has on the environment, society, and health. My topic of beef hits the heart of many of societies in the world, especially the United States of America. First, land distribution and water distribution for the beef industry is far too much. The land that the ranchers use for their livestock could be utilized for more sustainable use – such as crops and preserving the land itself. The water that is used for livestock is crucial, especially here in Nevada, where the water is so scarce. Red meat has been attributed to several western diseases, such as Heart Disease. There are many benefits to the limitation or the elimination of red meat in one’s diet. Lastly, the environment takes a massive hit by the beef industry. As a product of the cow’s gastrointestinal system, as high as 30% of the greenhouse gases are contributed by beef livestock. In summary, the industry of red meat takes a larger toll to our environment, society, and health than the benefits it provides.

LOCAL FOOD SOURCING IN SOUTHERN NEVADA: FREQUENCY, FEASIBILITY, AND COMPARISON

Brianna Garcia, Maria Straziuso, Shannon Kawamura, Angela Domanico & Shila Equipado
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Faculty Research Mentor: Levent Atici, Ph.D.
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The locavore movement, also known as the 100-mile diet, is a trend that is continuing to grow and change the way people buy their food. This is the loyalty to buying and consuming food that is strictly grown locally, for the sake of freshness and healthiness but also to support local farmers and economies. Our main research question is how much food available to residents of Southern Nevada is locally sourced, how difficult is it to locally source food here, and how does it compare to other parts of the country? In our research, we aim to gather data and information from local farmer’s markets, grocery stores, community gardens, and “food to table” restaurants by means of interviews and online research. We will inquire about their establishment’s definition of “local food” as well the percentage of their products that fit into that category. We will also discover the reasoning behind why the majority of food available in these different outlets is not grown locally. We will research the characteristics that allow agriculture and livestock to thrive in certain areas including weather, population, and farm space. Finally, we will be comparing this data to other regions in the country that have more or less access to locally grown food. This information can lead to systematic research and organization of data of the frequency, feasibility, and comparison of local food sourcing in Southern Nevada.
TIERRA Y LIBERTAD

Michelle Brown
Department of History

Faculty Research Mentor: Miriam Melton-Villanueva, Ph.D.
University of Nevada, Las Vegas, Department of History

“¡Tierra y Libertad!” presents the Mexican Revolution as a struggle to preserve communal land traditions through the point of view of an American reporter and socialist John Kenneth Turner. His early writings describe his first-hand accounts of consequences of land seizures on Mexico’s rural population (i.e. the entrenchment of peonage, the loss of indigenous homelands, the promotion of widespread political corruption, and encouragement of foreign investments). His understanding of the methods used by the Porfirio government to privatize communal lands is also presented, a Revolution initiated by rural poor and indigenous peoples who sought to restore their communal landholdings by ending the monopolies of Spanish elite and foreign investors.

I analyze legal code to establish the historical basis of Mexico’s communal lands and to explain the role of President Benito Juarez’s La Ley Lerdo in undermining those land traditions. Other primary documents, including a letter by President William Howard Taft and a news article on the Cananea riots add historical context. Finally, my research further explores the impact of the Mexican Revolution on later land policies, giving particular attention to Emiliano Zapata’s “Plan de Ayala” and Article 27 of the 1917 Constitution. The purpose of my paper is to bring to light an American Journalist’s view of the Mexican Revolution, one that finds inspiration in the efforts of rural laborers to ensure personal autonomy through the restitution of communal lands.

PIPELINES, LAND SEIZURE, AND INDIGENOUS COMMUNITIES: THE 19TH CENTURY TO TODAY

Alyssa Diaz¹ & Alejandra Herrera²
¹Department of Political Science
²Department of Sociology

Faculty Research Mentor: Miriam Melton-Villanueva, Ph.D.
University of Nevada, Las Vegas, Department of History

Relating construction of the Dakota Pipeline through Native land today, to the removal of land from the indigenous people of Mexico, we aim to answer what human rights were abused and what similarities exist over time between the land seizure of the indigenous people in Mexico and the United States. In each case, water and cultures are threatened with the building of pipelines to distribute petrochemicals.

Through the Land Act of 1894 Mexican President Porfirio Diaz seized indigenous lands by saying land ownership was valid only upon written and recorded evidence. Over 8 million farmers were displaced because of this. Similarly, the Dakota pipeline is causing displacement through the use of eminent domain. We will compare historical newspaper articles, legal code and treaties, to uncover similar colonial processes.
CLARK COUNTY EDUCATION: HELPING LATINOS

Juan Quiroz
Department of History

Faculty Research Mentor: Miriam Melton-Villanueva, Ph.D.
University of Nevada, Las Vegas, Department of History

This research looks how state governments assists or fails Latino students, the immigration status of all the Latino students in Clark county, the graduation and dropout rates of these students. This study is based on immigration statistics, graduation rates and lesson plans. Life, liberty, and the pursuit of happiness are the first words written in the United States Declaration of independence. At the time, the founding fathers originally wrote it for all white males. However, as time went on, these words started being applies to every one of different race and gender. People who immigrates to the United States are looking for a better life, freedom from all tyranny, and an opportunity to be happy. The United States had always welcome immigrants with open arms. This is shown by the steady increase of diversity throughout the country. Latino immigrants come from their countries to escape their corrupt governments and send their children to American schools for a brighter future. Since Donald Trump’s inauguration and immigration policy, undocumented immigrants fear that they will be deported and their children will be left homeless without anyone’s help. We as a country have a responsibility to welcome these immigrant and their children for a better future for our society. However, our educational system, whether intentional or not, is set up to fail children of immigrants. We need to better our education system to assist these students to eventually go to university to build a better world.

CRAP, COMPOST, CORN: COMPOSTING ON THE STRIP

Daniel Tafoya, Patrice Duecker, Brie-Anne Lavoie, Anthony Scott, & Zach Groover

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3Department of Geoscience
4Department of Criminal Justice
5Department of Psychology

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The present research explores the issues surrounding composting in Southern Nevada. As some local recyclers, such as R.C. Pig Farms, and their activities have attested, there is indeed a demand for food waste processing from the dominant hospitality industry. This research also addresses the potential environmental consequences of sending the excess food waste to landfills. Research has demonstrated that it is possible to generate a substantial amount of compost in a sustainable manner using local sources despite the extra water required for composting in the extremely arid environment of Southern Nevada. Additionally, we present and emphasize some potential benefits of an established “recycling and composting culture” for local businesses and food producers.
ANCIENT MESOAMERICA SURVIVES IN INDIGENOUS MEXICAN FASHION

Dylan Scott
Department of History

Faculty Research Mentor: Miriam Melton-Villanueva, Ph.D.
University of Nevada, Las Vegas, Department of History

Emphasizing on the manufacturing of textiles and the styles of the clothes, I will use indigenous historical drawings, archived photographs, museum collections, and a chronicle published in the early twentieth century to compare the techniques and fashions of the pre-colonized peoples with the contemporary and also, examine how an almost forgotten culture of costume was revitalized in what has been referred to as “Mexico’s Renaissance” to represent a proud and rich heritage today.

Fashions change with every few years, some styles repeat but others are timeless. Throughout history the means of making clothes have also changed and yet the technologies used are less likely to reoccur due to the progression of mankind and industry. Typically fashion historians and historical costumers are the only ones who continue to practice making clothes from handmade textiles. Some histories have been lost due to human advancements and usually only remnants remain. However, in Mexico, the indigenous techniques to make clothing and styles are continuously alive. These traditions thrive thanks to the Mexican Revolution of 1910 after nearly being lost. Clothing can define an era and are used at times to reconnect with our past. The Indigenous peoples of Mexico give an authentic look back on Mesoamerican cultures that have been long gone, such as the Aztec and Maya, through their clothing and are represented as the cultural identity of Mexicans today.

THE IMPROVEMENT OF STUDENT RETENTION AND STUDENT GRADUATION RATES PERTAINING TO A SENSE OF BELONGING

Xiomara Gonzalez¹, Kolby Akiyama², Dare Crown³, Josh Kaplan⁴, & Valonna Thrower-Love⁵
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Faculty Research Mentor: Anna Smedley-Lopez, Ph.D.
University of Nevada, Las Vegas, Department of Sociology

The purpose of our study is to assess the access to higher education for nontraditional students, students of color and identify methods towards a more meaningful educational experience as a way of improving student retention and graduation rates. Using community based participatory action research strategy (CBPAR) and S.L.I.C.E.S (Service Learning Initiatives for Community Engagement in Sociology), we are targeting resources for students. Non-probability sampling was used as we focused on the patterns of the resources available to students, however there were time limitations. Using keyword sampling strategy in order to best narrow down our results and more easily find patterns in our data. Some keywords include “sense of belonging, African American women of color, veterans, first generation students, and women” these were used to produce our waves of data thus producing our sampling frame. Quota sampling was also used as each researcher was asked to look for a number of internships, scholarships, and research opportunities. We will be using UNLV’s resource website and the internet to find different scholarships, internships, and research opportunities. The researchers were also to look for scholarly articles pertaining to the research question. Retention rates excel in an environment in which people feel accepted, they are able to focus more upon their academic work than a perceived negative environment. Many groups of students face barriers in their education, is the system adequately providing for students. The goal of the researchers for the intersection is trying to clarify the systematic inadequacy of institutions and diversity.
FROM REVOLUTIONARY TO HIERARCHICAL: THE DEVELOPMENT OF MEXICAN POLITICAL PARTIES AND A CULTURE OF VIOLENCE

Cristian Barba
Department of Sociology

Faculty Research Mentor: Miriam Melton-Villanueva, Ph.D.
University of Nevada, Las Vegas, Department of History

The dominant political party of Mexico—El Partido Revolucionario Institucional (PRI)—changed from being a revolutionary party and government into a hierarchical and authoritarian regime during the middle of the 20th century. This research explores the legacy of the Mexican Revolution in influencing the ideologies and attitudes of the dominant political party of Mexico. After the end of the military revolution, what the party stood for and represented changed, and will allow us to understand how the PRI has been able to hold onto its power until the present day by using the memory and ideology of the revolution and calculated suppression of its citizens. More specifically, by looking at how the PRI developed a culture of violence within the government and the state during its zenith in the mid-20th century, it will allow us to examine why it held such a grip on state politics for over seven decades. I will primarily be using a mix of secondary sources and primary sources such as classical photos, newspapers, and journals, to analyze the transformation of the PRI and its culture of violence.

FOOD AND NATIONALITY

Jesse Corona¹, Roxayn Povidas², & Zac Dillard²
¹Department of Psychology
²Department of Anthropology

Faculty Research Mentor: Levent Atici, Ph.D.
University of Nevada, Las Vegas, Department of Anthropology

The purpose of this study was to determine if what people from various different nationalities ate determined their personal cultural identity. Nationality is the state of being part of a nation whether it be by birth or naturalization or ties to a specific nation, whereas cultural identity is the identity or the feeling of belonging to a group. Cultural identity is part of a person’s self-conception and self-perception and is related to nationality. We looked at articles pertaining to people from Cuban, Japanese, Israeli and various other nationalities to see just to extent to which their nationalities determined what they eat. The big question was essentially, are we what we eat? Could somebody be of Cuban nationality but identify more with Japanese culture? Based on the data we collected we came to the conclusion that what people eat is an extension of their culture and national identity. We found that here in the United States, food helps to imply someone’s identity. An American with Italian roots will more often than not eat Italian food at home and have Italian customs. Just as someone with Japanese roots will eat Japanese food and identify themselves through that. Thus, it can be concluded that food is a part of our cultural identity which is directly connected to nationality.
IT TAKES A COMMUNITY: COMPILING A MODEL FOR FORMING COMMUNITY-BASED MINORITY HEALTH COALITIONS

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Faculty Research Mentor: Anna Smedley-Lopez, Ph.D.
University of Nevada, Las Vegas, Department of Sociology

Healthcare is a very complex and important topic that affects the lives of many Americans. Minority groups can face an even harsher reality as many might not have or are unable to gain access to proper healthcare. In response to this issue, Minority Health Coalitions have been in demand since the formation of the National Office of Minority Health. In 2010, Nevada's Office of Minority Health was defunded and the result has been the halted progress towards equity in the access to and quality of care with the apparent widening of minority health disparities; however, recently state-legislators have found an interest in addressing, communicating, and translating those minority health disparities into a comprehensive policy agenda. With the reinstatement of the Office of Minority Health and Equity being a priority for the State of Nevada, the Nevada Minority Health and Equity Coalition is a necessity for addressing minority health issues at the community level - that is still in its developing stages. This project focuses on compiling the missions, visions, and goals of multiple coalitions to provide a model for Nevada's and for future community coalitions to come.
# Index of Presenters

In alphabetical order by surname:

<table>
<thead>
<tr>
<th>Surname</th>
<th>Session</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdul-Hamid, Rauwshan</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Abelar, James</td>
<td>E</td>
<td>10, 32</td>
</tr>
<tr>
<td>Akiyama, Kolby</td>
<td>H</td>
<td>11, 45</td>
</tr>
<tr>
<td>Anderson, Reggie</td>
<td>E</td>
<td>10, 31</td>
</tr>
<tr>
<td>Araujo, Sophia</td>
<td>B</td>
<td>8, 19</td>
</tr>
<tr>
<td>Barba, Cristian</td>
<td>H</td>
<td>11, 46</td>
</tr>
<tr>
<td>Bauzon, Justin</td>
<td>A</td>
<td>8, 14</td>
</tr>
<tr>
<td>Bender, Chloe</td>
<td>E</td>
<td>10, 34</td>
</tr>
<tr>
<td>Biggs, Keely</td>
<td>C</td>
<td>9, 24</td>
</tr>
<tr>
<td>Blish, Hayley</td>
<td>H</td>
<td>11, 47</td>
</tr>
<tr>
<td>Blondin, Steven</td>
<td>F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Bozzano, Quinn</td>
<td>E</td>
<td>10, 33</td>
</tr>
<tr>
<td>Brown, Dustin</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Brown, Michelle</td>
<td>G</td>
<td>11, 43</td>
</tr>
<tr>
<td>Carver, Sheila</td>
<td>H</td>
<td>11, 47</td>
</tr>
<tr>
<td>Cassin, Erin</td>
<td>B</td>
<td>8, 21</td>
</tr>
<tr>
<td>Castillo, Timothy</td>
<td>H</td>
<td>11, 47</td>
</tr>
<tr>
<td>Chaidez, Hector</td>
<td>E</td>
<td>10, 32</td>
</tr>
<tr>
<td>Chappa, Matthew</td>
<td>D</td>
<td>9, 30</td>
</tr>
<tr>
<td>Ching, Tyler</td>
<td>H</td>
<td>11, 47</td>
</tr>
<tr>
<td>Chung, Nicky</td>
<td>C</td>
<td>9, 26</td>
</tr>
<tr>
<td>Colburn, Chase</td>
<td>D</td>
<td>9, 28</td>
</tr>
<tr>
<td>Conley, Cherokee</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Contreras, April</td>
<td>E</td>
<td>10, 32</td>
</tr>
<tr>
<td>Corona, Jesse</td>
<td>H</td>
<td>11, 46</td>
</tr>
<tr>
<td>Cotter, Brianna</td>
<td>A</td>
<td>8, 13</td>
</tr>
<tr>
<td>Coulibaly, Ahmed</td>
<td>F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Crown, Dare</td>
<td>H</td>
<td>11, 45</td>
</tr>
<tr>
<td>Cruz, Esmeralda</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Dace, Cara</td>
<td>D</td>
<td>9, 30</td>
</tr>
<tr>
<td>Daniels, Micajah</td>
<td>H</td>
<td>11, 47</td>
</tr>
<tr>
<td>Diaz, Alyssa</td>
<td>G</td>
<td>11, 43</td>
</tr>
<tr>
<td>DiBona, Tori</td>
<td>E</td>
<td>10, 31</td>
</tr>
<tr>
<td>Dillard, Zac</td>
<td>H</td>
<td>11, 46</td>
</tr>
<tr>
<td>Do, Dung (Jenny)</td>
<td>B</td>
<td>8, 20</td>
</tr>
<tr>
<td>Donald, Audrey</td>
<td>A</td>
<td>8, 14</td>
</tr>
<tr>
<td>Driscoll, Natasha</td>
<td>F</td>
<td>10, 37</td>
</tr>
<tr>
<td>Duecker, Patrice</td>
<td>H</td>
<td>11, 44</td>
</tr>
<tr>
<td>Eisinger, Jordan</td>
<td>F</td>
<td>10, 36</td>
</tr>
<tr>
<td>Equipado, Shila</td>
<td>G</td>
<td>11, 42</td>
</tr>
<tr>
<td>Evans, Miranda</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Fazio, Danielle</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Febeles, Mariely</td>
<td>F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Flores, Emmanuel</td>
<td>F</td>
<td>10, 36</td>
</tr>
<tr>
<td>Flores, Luis</td>
<td>B</td>
<td>8, 19</td>
</tr>
<tr>
<td>Fuller, Marcus</td>
<td>A</td>
<td>8, 15</td>
</tr>
<tr>
<td>Garcia, Angela</td>
<td>C</td>
<td>9, 24</td>
</tr>
<tr>
<td>Garcia, Brianna</td>
<td>G</td>
<td>11, 42</td>
</tr>
<tr>
<td>Garcia, Julio</td>
<td>A</td>
<td>8, 15</td>
</tr>
<tr>
<td>Gepford, Brandon</td>
<td>C</td>
<td>9, 22</td>
</tr>
<tr>
<td>Gloster, Malik</td>
<td>H</td>
<td>11, 47</td>
</tr>
<tr>
<td>Goga, Stefania</td>
<td>F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Gonzalez, Paola</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Gonzalez, Xiomara</td>
<td>H</td>
<td>11, 45</td>
</tr>
<tr>
<td>Groover, Zach</td>
<td>H</td>
<td>11, 44</td>
</tr>
<tr>
<td>Habashy, Jessica</td>
<td>D</td>
<td>9, 27</td>
</tr>
<tr>
<td>Haroan, Vanessa</td>
<td>G</td>
<td>11, 42</td>
</tr>
<tr>
<td>Helin, Austin</td>
<td>F</td>
<td>10, 37</td>
</tr>
<tr>
<td>Herrera, Alejandra</td>
<td>G</td>
<td>11, 43</td>
</tr>
<tr>
<td>Jensen, Jessica</td>
<td>D</td>
<td>9, 27</td>
</tr>
<tr>
<td>Jose, Cilla</td>
<td>C</td>
<td>8, 23</td>
</tr>
<tr>
<td>Joya, Christina</td>
<td>A</td>
<td>8, 13</td>
</tr>
</tbody>
</table>
K
Kane, Sarah  Session F  10, 36
Kaplan, Josh  Session H  11, 45
Karas, Dale  Session B  8, 18
Kirschenheiter, A Bernadette  Session C  9, 25
Koh, Joseph  Session G  11, 41

L
Lavoie, Brie-Anne  Session H  11, 44
Lee, Christina  Session B  8, 18
Lee, Soyoung  Session E  10, 35
Leslie, Jared  Session E  10, 33
Lilang, Jessica  Session F  10, 36
Lopez, Ingrid  Session F  10, 36
Lule, Lidia  Session F  10, 38

M
Mamauag, Mieko  Session C  9, 25
Manz, Francesa  Session F  10, 37
McLaughlin, Sarah  Session G  11, 40
McNeiece, Michael  Session A  8, 16
Meraz, Sara  Session G  11, 40
Morgan, Demetrious  Session F  10, 36
Mussio-Marquez, Jessica  Session D  9, 29

O
Ortiz, Jorge  Session F  10, 37

P
Pacheco, Janer  Session G  11, 41
Palmer, Annalisa  Session D  9, 28
Payne, Devon  Session C  9, 22
Pedroza, Gerardo  Session G  11, 41
Povidas, Roxayn  Session H  11, 46
Pulido, Aldair  Session A  8, 15

Q
Quinn, Cody  Session D  9, 30
Quinton, Sophia  Session B  8, 20
Quiroz, Juan  Session H  11, 44

R
Rader, Matthew  Session C  9, 23
Raja, Mahdeed  Session B  8, 21
Rand, Jonas  Session F  10, 37
Reddicks, Emily  Session F  10, 38
Richards, Patricia  Session F  10, 37
Rigney, Andrew  Session F  10, 39
Roberto, Tori  Session F  10, 39
Rodriguez, Armani  Session E  10, 34
Romero, Anthony  Session E  10, 33

S
Sanchez, Mary  Session D  9, 27
Scheier, Shane  Session F  10, 37
Schofield, Melissa  Session B  8, 17
Scott, Anthony  Session H  11, 44
Scott, Dylan  Session H  11, 45
Serru, Alejandro  Session D  9, 28
Silic, Stephanie  Session B  8, 18
Silva, Lexy  Session F  10, 39
St. John, Mady  Session F  10, 36
Stamm, Xena  Session G  11, 40
Straziuso, Maria  Session G  11, 42
Sukiasian, Anna  Session D  9, 29

T
Tafoya, Daniel  Session H  11, 44
Tam, Samuel  Session B  8, 18
Tang, Gala  Session E  10, 32
Thompson, Eli  Session H  11, 47
Thornley, Brenna  Session F  10, 39
Thrower-Love, Valonna  Session H  11, 45
Torres, Beatriz  Session D  9, 29

V
Vaughan, Emily  Session F  10, 36
Velez, Kathie  Session C  9, 24

W
Wells, Felisha  Session D  9, 30
Whewle, Jeffrey  Session G  11, 41
Williams, Shannon  Session H  11, 47
# INDEX of Presenters

By College/School Affiliation

## College of Education

**DEPARTMENT OF TEACHING AND LEARNING**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonzalez, Paola</td>
<td>G</td>
<td>11, 40</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF EDUCATION & CLINICAL STUDIES**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chappa, Matthew</td>
<td>D</td>
<td>9, 30</td>
</tr>
<tr>
<td>Dace, Cara</td>
<td>D</td>
<td>9, 30</td>
</tr>
<tr>
<td>Hendel, Winter</td>
<td>D</td>
<td>9, 30</td>
</tr>
<tr>
<td>Wells, Felisha</td>
<td>D</td>
<td>9, 30</td>
</tr>
</tbody>
</table>

## College of Fine Arts

**DEPARTMENT OF ART**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lee, Soyoung</td>
<td>E</td>
<td>10, 35</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF DANCE**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evans, Miranda</td>
<td>G</td>
<td>11, 40</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF FILM**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abdul-Hamid, Rauwshan</td>
<td>G</td>
<td>11, 40</td>
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</tbody>
</table>

## College of Liberal Arts

**DEPARTMENT OF ANTHROPOLOGY**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bender, Chloe</td>
<td>E</td>
<td>10, 34</td>
</tr>
<tr>
<td>Bozanno, Quinn</td>
<td>E</td>
<td>10, 33</td>
</tr>
<tr>
<td>Coulibaly, Ahmed</td>
<td>F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Dillard, Zac</td>
<td>H</td>
<td>11, 46</td>
</tr>
<tr>
<td>Equipado, Shila</td>
<td>G</td>
<td>11, 42</td>
</tr>
<tr>
<td>Garcia, Brianna</td>
<td>G</td>
<td>11, 42</td>
</tr>
<tr>
<td>Helin, Austin</td>
<td>F</td>
<td>10, 37</td>
</tr>
<tr>
<td>Manz, Francesca</td>
<td>F</td>
<td>10, 37</td>
</tr>
<tr>
<td>Pacheco, Janer</td>
<td>G</td>
<td>11, 41</td>
</tr>
<tr>
<td>Pedroza, Gerado</td>
<td>G</td>
<td>11, 41</td>
</tr>
<tr>
<td>Povidas, Roxayn</td>
<td>H</td>
<td>11, 46</td>
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<tr>
<td>Rand, Jonas</td>
<td>F</td>
<td>10, 37</td>
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<td>F</td>
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<tr>
<td>Roberto, Tori</td>
<td>F</td>
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<td>Silva, Lexy</td>
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<tr>
<td>Straziuso, Maria</td>
<td>G</td>
<td>11, 42</td>
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<td>Tafoya, Daniel</td>
<td>H</td>
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</table>

**DEPARTMENT OF ENGLISH**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Palmer, Annalisa</td>
<td>D</td>
<td>9, 28</td>
</tr>
</tbody>
</table>

## College of Liberal Arts

**DEPARTMENT OF HISTORY**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown, Michelle</td>
<td>G</td>
<td>11, 43</td>
</tr>
<tr>
<td>Lule, Lidia</td>
<td>F</td>
<td>10, 38</td>
</tr>
<tr>
<td>McNiece, Michael</td>
<td>A</td>
<td>8, 16</td>
</tr>
<tr>
<td>Pulido, Aldair</td>
<td>A</td>
<td>8, 15</td>
</tr>
<tr>
<td>Quiroz, Juan</td>
<td>H</td>
<td>11, 44</td>
</tr>
<tr>
<td>Reddicks, Emily</td>
<td>F</td>
<td>10, 38</td>
</tr>
<tr>
<td>Scott, Dylan</td>
<td>H</td>
<td>11, 45</td>
</tr>
</tbody>
</table>

**EXPLORING MAJORS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gonzalez, Xiomara</td>
<td>H</td>
<td>11, 45</td>
</tr>
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</table>

**DEPARTMENT OF POLITICAL SCIENCE**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brown, Dustin</td>
<td>G</td>
<td>11, 40</td>
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<tr>
<td>Crown, Dare</td>
<td>H</td>
<td>11, 45</td>
</tr>
<tr>
<td>Diaz, Alyssa</td>
<td>G</td>
<td>11, 43</td>
</tr>
<tr>
<td>Fuller, Marcus</td>
<td>A</td>
<td>8, 15</td>
</tr>
<tr>
<td>Lopez, Ingrid</td>
<td>F</td>
<td>10, 36</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF PSYCHOLOGY**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abelar, James</td>
<td>E</td>
<td>10, 32</td>
</tr>
<tr>
<td>Anderson, Reggie</td>
<td>E</td>
<td>10, 31</td>
</tr>
<tr>
<td>Bauzon, Justin</td>
<td>A</td>
<td>8, 14</td>
</tr>
<tr>
<td>Chaidez, Hector</td>
<td>E</td>
<td>10, 32</td>
</tr>
<tr>
<td>Conley, Cherokee</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Contreras, April</td>
<td>E</td>
<td>10, 32</td>
</tr>
<tr>
<td>Corona, Jesse</td>
<td>H</td>
<td>11, 46</td>
</tr>
<tr>
<td>DiBona, Tori</td>
<td>E</td>
<td>10, 31</td>
</tr>
<tr>
<td>Donald, Audrey</td>
<td>A</td>
<td>8, 14</td>
</tr>
<tr>
<td>Flores, Emmanuel</td>
<td>F</td>
<td>10, 36</td>
</tr>
<tr>
<td>Groover, Zach</td>
<td>H</td>
<td>11, 44</td>
</tr>
<tr>
<td>Habashy, Jessica</td>
<td>D</td>
<td>9, 27</td>
</tr>
<tr>
<td>Haroan, Vanessa</td>
<td>G</td>
<td>11, 42</td>
</tr>
<tr>
<td>Jensen, Jessica</td>
<td>D</td>
<td>9, 27</td>
</tr>
<tr>
<td>Joya, Christina</td>
<td>A</td>
<td>8, 13</td>
</tr>
<tr>
<td>Kaplan, Josh</td>
<td>H</td>
<td>11, 45</td>
</tr>
<tr>
<td>Leslie, Jared</td>
<td>E</td>
<td>10, 33</td>
</tr>
<tr>
<td>McLaughlin, Sarah</td>
<td>G</td>
<td>11, 40</td>
</tr>
<tr>
<td>Mussio-Marquez, Jessica</td>
<td>D</td>
<td>9, 29</td>
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<tr>
<td>Quinn, Cody</td>
<td>D</td>
<td>9, 30</td>
</tr>
<tr>
<td>Rodriguez, Armani</td>
<td>E</td>
<td>10, 34</td>
</tr>
<tr>
<td>Romero, Anthony</td>
<td>E</td>
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</tr>
<tr>
<td>Sanchez, Mary</td>
<td>D</td>
<td>9, 27</td>
</tr>
<tr>
<td>Scheier, Shane</td>
<td>F</td>
<td>10, 37</td>
</tr>
<tr>
<td>Sukiasian, Anna</td>
<td>D</td>
<td>9, 29</td>
</tr>
<tr>
<td>Tang, Gala</td>
<td>H</td>
<td>10, 32</td>
</tr>
<tr>
<td>Torres, Beatriz</td>
<td>D</td>
<td>9, 29</td>
</tr>
<tr>
<td>Department</td>
<td>Name</td>
<td>Session/Department</td>
</tr>
<tr>
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<tr>
<td>DEPARTMENT OF SOCIOLOGY</td>
<td>Barba, Cristian</td>
<td>Session H</td>
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<tr>
<td></td>
<td>Cruz, Esmeralda</td>
<td>Session G</td>
</tr>
<tr>
<td></td>
<td>Daniels, Micajah</td>
<td>Session H</td>
</tr>
<tr>
<td></td>
<td>Fazio, Danielle</td>
<td>Session G</td>
</tr>
<tr>
<td></td>
<td>Gloster, Malik</td>
<td>Session H</td>
</tr>
<tr>
<td></td>
<td>Hamilton, Ashley</td>
<td>Session A</td>
</tr>
<tr>
<td></td>
<td>Herrera, Alejandra</td>
<td>Session G</td>
</tr>
<tr>
<td></td>
<td>Kane, Sarah</td>
<td>Session F</td>
</tr>
<tr>
<td></td>
<td>Stamm, Xena</td>
<td>Session G</td>
</tr>
<tr>
<td></td>
<td>Thompson, Eli</td>
<td>Session H</td>
</tr>
<tr>
<td></td>
<td>Williams, Shannon</td>
<td>Session H</td>
</tr>
<tr>
<td></td>
<td>St. John, Mady</td>
<td>Session F</td>
</tr>
<tr>
<td></td>
<td>Vaughan, Emily</td>
<td>Session F</td>
</tr>
</tbody>
</table>

**College of Sciences**

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF CHEMISTRY &amp; BIOCHEMISTRY</td>
<td>Do, Dung (Jenny)</td>
<td>Session B</td>
<td>8, 20</td>
</tr>
</tbody>
</table>

**DEPARTMENT OF GEO SCIENCE**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blondin, Steven</td>
<td>Session F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Driscoll, Natasha</td>
<td>Session F</td>
<td>10, 37</td>
</tr>
<tr>
<td>Garcia, Angela</td>
<td>Session C</td>
<td>9, 24</td>
</tr>
<tr>
<td>Lavoie, Brie-Anne</td>
<td>Session H</td>
<td>11, 44</td>
</tr>
<tr>
<td>Rigney, Andrew</td>
<td>Session F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Thronley, Brenna</td>
<td>Session F</td>
<td>10, 39</td>
</tr>
</tbody>
</table>

**SCHOOL OF LIFE SCIENCES**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Araujo, Sophia</td>
<td>Session B</td>
<td>8, 19</td>
</tr>
<tr>
<td>Cassin, Erin</td>
<td>Session B</td>
<td>8, 21</td>
</tr>
<tr>
<td>Chung, Nicky</td>
<td>Session C</td>
<td>9, 26</td>
</tr>
<tr>
<td>Colburn, Chase</td>
<td>Session D</td>
<td>9, 28</td>
</tr>
<tr>
<td>Gepford, Brandon</td>
<td>Session C</td>
<td>9, 22</td>
</tr>
<tr>
<td>Goga, Stefania</td>
<td>Session F</td>
<td>10, 39</td>
</tr>
<tr>
<td>Kirschheiter, A. Bernadette</td>
<td>Session C</td>
<td>9, 25</td>
</tr>
<tr>
<td>Lee, Christina</td>
<td>Session B</td>
<td>8, 18</td>
</tr>
<tr>
<td>Payne, Devon</td>
<td>Session C</td>
<td>9, 22</td>
</tr>
<tr>
<td>Quinton, Sophia</td>
<td>Session B</td>
<td>8, 20</td>
</tr>
<tr>
<td>Rader, Matthew</td>
<td>Session C</td>
<td>9, 23</td>
</tr>
<tr>
<td>Raja, Mahdeed</td>
<td>Session B</td>
<td>8, 21</td>
</tr>
<tr>
<td>Schofield, Melissa</td>
<td>Session B</td>
<td>8, 17</td>
</tr>
<tr>
<td>Serru, Alejandro</td>
<td>Session D</td>
<td>9, 28</td>
</tr>
<tr>
<td>Velez, Kathie</td>
<td>Session C</td>
<td>9, 24</td>
</tr>
</tbody>
</table>

**College of Southern Nevada**

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF BIOLOGICAL SCIENCE</td>
<td>Biggs, Keely</td>
<td>Session C</td>
<td>9, 24</td>
</tr>
</tbody>
</table>

**Greenspun Urban Affairs**

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF CRIMINAL JUSTICE</td>
<td>Carver, Sheila</td>
<td>Session H</td>
<td>11, 47</td>
</tr>
<tr>
<td></td>
<td>Scott, Anthony</td>
<td>Session H</td>
<td>11, 44</td>
</tr>
<tr>
<td></td>
<td>Thrower-Love, Valonna</td>
<td>Session H</td>
<td>11, 45</td>
</tr>
</tbody>
</table>

**SCHOOL OF SOCIAL WORK**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blish, Hayley</td>
<td>Session H</td>
<td>11, 47</td>
</tr>
<tr>
<td>Morgan, Demetrius</td>
<td>Session F</td>
<td>10, 36</td>
</tr>
</tbody>
</table>

**Howard Hughes Engineering**

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF COMPUTER SCIENCE</td>
<td>Febeles, Mariely</td>
<td>Session F</td>
<td>10, 39</td>
</tr>
<tr>
<td></td>
<td>Koh, Joseph</td>
<td>Session G</td>
<td>11, 41</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPT OF ELECTRICAL &amp; COMPUTER ENGINEERING</td>
<td>Silic, Stephanie</td>
<td>Session B</td>
<td>8, 18</td>
</tr>
<tr>
<td></td>
<td>Tam, Samuel</td>
<td>Session B</td>
<td>8, 18</td>
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</table>

**DEPARTMENT OF MECHANICAL ENGINEERING**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cilia, Jose</td>
<td>Session C</td>
<td>8, 23</td>
</tr>
<tr>
<td>Karas, Dale</td>
<td>Session B</td>
<td>8, 18</td>
</tr>
</tbody>
</table>

**Interdisciplinary, Gender, & Ethnic Studies**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ortiz, Jorge</td>
<td>Session F</td>
<td>10, 37</td>
</tr>
<tr>
<td>Cotter, Brianna</td>
<td>Session A</td>
<td>8, 13</td>
</tr>
<tr>
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**Lee Business School**

<table>
<thead>
<tr>
<th>Department</th>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEPARTMENT OF ACCOUNTING</td>
<td>Akiyama, Kolby</td>
<td>Session H</td>
<td>11, 45</td>
</tr>
<tr>
<td></td>
<td>Castillo, Timothy</td>
<td>Session H</td>
<td>11, 47</td>
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</table>

**DEPARTMENT OF ECONOMICS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eisnger, Jordan</td>
<td>Session F</td>
<td>10, 36</td>
</tr>
<tr>
<td>Wheble, Jeffrey</td>
<td>Session G</td>
<td>11, 41</td>
</tr>
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</table>

**DEPT OF MARKETING & INTERNATIONAL BUSINESS**

<table>
<thead>
<tr>
<th>Name</th>
<th>Session/Department</th>
<th>Time</th>
</tr>
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<tr>
<td>Garcia, Julio</td>
<td>Session A</td>
<td>8, 15</td>
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</tbody>
</table>
School of Allied Health
DEPT OF KINESIOLOGY & NUTRITION SCIENCES
Ching, Tyler Session H 11, 47
Flores, Luis Session B 8, 19
Mamauag, Mieko Session C 9, 25

School of Community Health
DEPT OF ENVIRONMENTAL/OCUPATIONAL HEALTH
Duecker, Patrice Session H 11, 44

School of Nursing
Lilang, Jessica Session F 10, 36
If you presented at the 2017 Spring Forum, consider applying for this funding opportunity!

**[DETAILS]**

Applicants will be considered for two types of awards under the OUR SURF program, depending on their academic affiliation.

- **General scholarships:** $1,000 each. These scholarships are available to students in any major. General scholarship funds are provided by the Office of the Executive Vice President and Provost, CSUN Undergraduate Student Government, and the Office of Undergraduate Research.

- **College Specific/Topical scholarships:** Amounts and number of awards vary. College specific scholarships are awarded according to the student’s college affiliation (major), and topical scholarships are open to students pursuing a project in a specific topical area. Amount and number of awards vary by college.

**[WHO CAN APPLY]**

Undergraduate students with a 2.5 GPA who are currently enrolled at UNLV, NSC, or CSN can apply. Student must be working with an NSHE faculty research mentor on a research project during the summer 2017 term.

**[HOW TO APPLY]**

Visit unlv.edu/OUR and complete the online application by Wednesday, April 26th. Contact Dr. Sharon Young at sharon.young@unlv.edu with question, comments, and/or concerns.

**[This scholarship program is generously sponsored by]:**

- CSUN Student Government
- School of Allied Health Sciences
- School of Community Health Sciences
- Howard R. Hughes College of Engineering
- The Division of Research and Economic Development
- The Office of the Executive Vice President & Provost
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- College of Education
- College of Fine Arts
- College of Sciences
- School of Nursing
- Honors College
- OUR-UNLV