

The Office of Student Research & The Office of Graduate Studies Present the
5th Annual
Student Research Symposium



Meeting of
the Minds
Event Program



May 19, 2016 • 9:30 a.m.-7 p.m. • Santos Manuel Student Union



CALIFORNIA STATE UNIVERSITY, SAN BERNARDINO

Table of Contents

- Symposium Welcome Message..... 2**
- Faculty Moderators 2**
- Agenda 3**
- Workshops 4**
- 2016 Student Research Honoree 5**
- Highlights in Research..... 6**
- Special Performance 6**
- Students & Coyotes: Instruction in Poetry and Prose (SCIPP)..... 7**
- Transforming Educational Practice Through Research 8**
- “Meeting of the Minds”
Oral Presentation Schedule 9**

- Abstracts**
- Arts & Letters..... 13**
- Business and Public Administration 19**
- Natural Sciences 23**
- Social & Behavioral Sciences 38**
- Education 62**
- Special Thanks..... 63**

Symposium Welcome Message

Welcome to the 5th annual Meeting of the Minds Student Research Symposium! This year’s event promises to be exceptional – we have nearly 200 oral and poster presentations from programs throughout the university, several outstanding guest speakers, and workshops on publishing and obtaining funding. With almost every discipline participating, our university is well-represented by our students’ outstanding works.

As we review the list of student presentations, we are awed by the breadth and quality of the topics beings explored. Undertaking a research project or producing a creative work is no small matter; it requires persistence, talent, and critical thinking – skills that will benefit our students throughout their lifetimes. We are proud of their achievements.

We also want to recognize the commitment of our faculty mentors, and applaud their willingness to put in long hours to ensure their students’ success. Without their guidance, many of the impressive projects presented today would not have been seen through to fruition.

Finally, we want to thank you all for coming out to support our students – we hope you enjoy the symposium and learn something new in the process!

Faculty Moderators

College of Arts & Letters

Dr. Annie Buckley
Dr. Carol Damgen

College of Business & Public Administration

Dr. Marc Fudge
Dr. Alexandru Roman
Dr. Victoria Seitz

College of Natural Sciences

Dr. Guillermo Escalante
Dr. Tomasz Owerkowicz
Dr. Jeremy Dodsworth
Dr. Kimberley Cousins

College of Social & Behavioral Sciences

Dr. Arianna Hugh
Dr. Christina Hassija
Dr. Jacqueline Leventon
Dr. Monideepa Becerra
Dr. Joseph Wellman

Agenda

9-9:30 a.m.

Event Center

Registration

9-9:50 a.m.

Theatre, SMSU 107

Welcome

Dr. Francisca Beer

President Tomás D. Morales

9:50-10:10 a.m.

Theatre, SMSU 107

2015-16 Outstanding Scholarship, Research,
Creative Activities Award

10:10-10:20 a.m.

Theatre, SMSU 107

CSUSB Student Research Competition Recognition

10:20-10:40 a.m.

Theatre, SMSU 107

Student Honoree, Joshua Adamson

"Twitter Privacy: Determinants of Sharing Behavior
on Twitter"

10:40-11 a.m.

Theatre, SMSU 107

Dr. Allen Menton and Student Team

"Practical Research for the Composition of
New Music"

11:10 a.m.-Noon

RM 207

Workshop: "Publishing a Scholarly Article"

RM 208

Workshop: "Funding for Graduate School"

Noon-1 p.m.

Event Center C

Lunch

Dr. Owerkowicz and Student Team

"The Humpty Dumpty Alligator: Why Eggs Have
Eggshells"

Student and Coyotes: Instruction in Poetry and
Prose (SCIPP)

1-2:30 p.m.

Event Center A & B

Poster Presentations & Art Exhibits

RM 215-218

Student Presentations I

2:40-4 p.m.

RM 215-218

Student Presentations II

4-5:30 p.m.

RM 215-218

Student Presentations III

5:40-6 p.m.

Event Center C

Reception

6-6:20 p.m.

Event Center C

Transforming Educational Practice Through
Research Panel

6:20-6:40 p.m.

Event Center C

Awards Ceremony

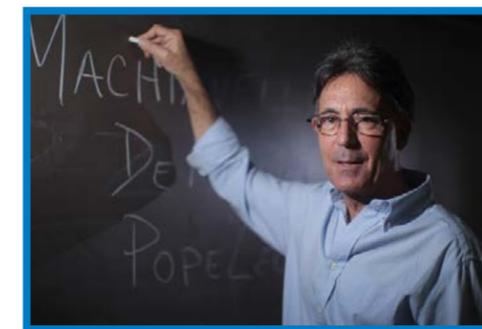
6:40-7 p.m.

Event Center C

Closing Remarks

Workshops

Publishing a Scholarly Article

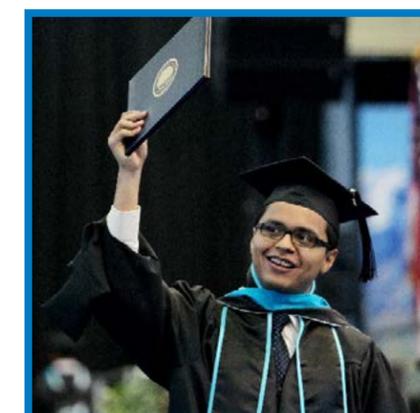


Presented by: **Stacy Magedanz, PFAU Library**
Location: SMSU Room 207

Time: 11:10 a.m.

This workshop is designed for those who are curious about what it takes to turn that paper or thesis into a journal article. This workshop takes a look at how publishing works, including choosing the right journal, the process of peer review, and what to expect if and when your manuscript is accepted for publication.

Funding for Graduate School



Presented by: **Priscilla Lake, Financial Aid Office**
Location: SMSU Room 208

Time: 11:10 a.m.

This workshop will provide an overview of the federal, state and institutional funding available it will also include the application process and preparation tips. This workshop is taught by the CSUSB Financial Aid Office.

2016 Student Research Honoree



Joshua Adamson

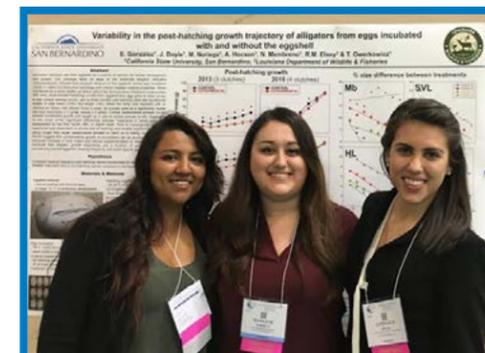
Major: Communications Studies

Department of Communications, CSUSB

Presenting: *Twitter Privacy: Determinants of Sharing Behavior on Twitter*

Selected as this year's 2016 Student Research Honoree, Josh Adamson is a Communication Studies major with a Political Science minor at Cal State San Bernardino. A 2009 graduate of Lakeside High School, where he was a valedictorian, the Murrieta resident attended Mount San Jacinto College for three years before transferring to CSUSB in the 2014-2015 academic year. Adamson served as the president of MSJC's Political Science club; at CSUSB, he has become a member of several distinguished honor societies, including The National Society of Leadership and Success, the Golden Key International Honor Society, and The Honor Society of Phi Kappa Phi. During summer 2015, Adamson worked alongside CSUSB Communications Studies professor Dr. Mihaela Popescu as part of the Office of Student Research's (OSR) Summer Research Program, wherein the team collaboratively developed a questionnaire as part of the creation of an online privacy literacy scale. Adamson presented his research paper, *Twitter Privacy: Determinants of Sharing Behavior on Twitter* – which is based on the data yielded from that questionnaire – to the Western States Communication Association's (WSCA) Undergraduate Scholars Research Conference (USRC) on Feb. 27, 2016; his paper earned a top paper award (silver) at the conference. Adam's hopes to acquire his MA/Ph.D. in Political Communication, and to one day become a professor himself. *Read more about his research on page 13.*

Highlights in Research



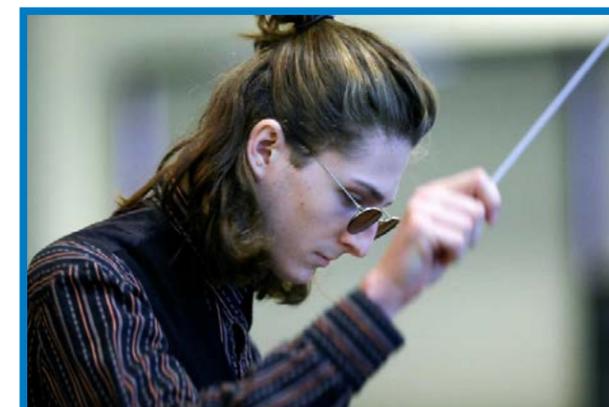
Students: Estefania Gonzalez, Janelle Doyle and Marlene Noriega

Faculty Mentor: Tomasz Owerkowicz

Title: *Variability in the post-hatching growth trajectory of alligator hatchlings incubated with and without the eggshell*

As undergraduates majoring in Biology, Estefania Gonzalez, Janelle Doyle and Marlene Noriega each participated in the 2015 Summer Research program alongside their faculty mentor, Dr. Tomasz Owerkowicz. Their project investigated the importance of two putative roles of the calcareous eggshell in eggs of the American alligator: eggshell as a reservoir of calcium for embryonic development and growth, and eggshell as a barrier to bacterial infection. Using a novel experimental approach – peeling the eggshell and incubating the eggshell-less eggs, tested three hypotheses: (1) alligators without eggshell show reduced skeletal maturity at hatching; (2) inhibition of carbonic anhydrase enzyme has the same effect as peeling the eggshell; and (3) bacterial inoculation results in greater embryonic mortality in the absence of the eggshell. The (preliminary) results suggest that the eggshell is an important source of calcium, but is not required to prevent infection of egg contents. The students were invited to present their research during this year's symposium for their project's originality and quality of presentation.

Special Performance



Students: Daniel Ridder, Oscar Hidalgo and Joshua Ryan

Faculty Mentor: Allen Menton

Title: *Practical Research for the Composition of New Music*

Daniel Ridder, Oscar Hidalgo and Joshua Ryan are phenomenal musicians who also participated in the 2015 Summer Research Program with the guidance of Dr. Allen Menton. Their research focuses on the composition of original music through the practical specifics of an instrument or group of instruments, the intended performer or ensemble, the limitations and expectations of the premier performance, as well as the existing repertoire for the particular instrument or ensemble. All of this practical information is used to inform the composition of a new work. These three student composers have undertaken an individual project, carried out the research, and will perform their original musical composition during the opening ceremony.

Students & Coyotes: Instruction in Poetry and Prose (SCIPP)

SCIPP is a volunteer mentoring program, pairing CSUSB Creative Writing MFA and undergraduate students with the students from schools across the San Bernardino School District and Bryant Elementary in Riverside. This program allows students the opportunity to follow their passions and to envision themselves in academic roles – as scholars, artists, and educators. The participating families consist of K-12 students and their parents, who have been selected to read original work. The performances will be of individual pieces as well as collaborations between past and present CSUSB SCIPP instructors and our K-12 SCIPP families (parents and children). This will be a performance that celebrates our diversity while also reinforcing our commitment to one another and our community.



Transforming Educational Practice Through Research



Dr. Pamela Buchanan: *The study focused on Common Core State Standards (CCSS) implementation, which offered a meaningful problem of practice for someone in middle management tasked with facilitating educational reform. Appreciative Inquiry (AI) offers a way to embrace and design change implementation around successful organizational practices. The necessary elements for AI to work were present in the sample, and correlations between the desired outcome and the use of AI were significant. Dr. Buchanan uses this validated model as a framework for leadership around CCSS implementation.*



Dr. Courtney Doussett: *Teachers' perceptions of student engagement were examined prior to and following implementation of a classroom-based physical activity intervention program, ABC for Fitness. Three main findings emerged: 1) teachers' ratings and perceptions of student engagement improved; 2) teachers' attitudes towards students improved; and, 3) teachers' level of engagement in the classroom improved. A classroom-based physical activity program, such as ABC for Fitness, is easy to implement and a viable option to increase movement, student engagement, and potentially improve academic achievement.*



Dr. Audrey Hovannesian: *The 100 Dinners Project successfully demonstrated that Conceptual Change Theory Protocol (CCTP) may be adapted to educational settings outside of reshaping students' perceptions of math and science concepts. Results demonstrated CCTP's ability to reshape teacher perceptions of their students resulting in positive instruction and learning changes. The study has become the participating school site's signature pedagogy. Dr. Hovannesian frequently meets with school districts and universities around the country regarding student success programs and designing projects to increase school connectedness.*

"Meeting of the Minds" Oral Presentation Schedule

Session I

Location: RM 215

Time: 1-2:20 p.m.

Moderator: Dr. Christina Hassija

College: Social and Behavioral Sciences

1:00

Ariel Mendoza and Susana Hernandez

*Enhancing effects of Emotion on Memory
Performance: A Neurobehavioral Examination of
Emotional Arousal*

1:20

Nancy Palafox, Lizzet Pineda, Zaira Cardona

*Space and Place: Power, Sanctity, Media and
Technology*

1:40

Nina Francezca Calub

Ethnic Identity and Interracial Marital Dynamics

2:00

Heather Carrasco

*The Influence of Social Media Viewing on Sexual
Assault Beliefs*

2:20

Sarah McMullen

*Cultural Values, Negative Reactions to
Sexual Assault Disclosure and Posttraumatic Stress
Disorder Symptoms*

Location: RM 216

Time: 1-2:20 p.m.

Moderator: Dr. Marc Fudge

College: Arts and Letters

1:00

Allyson Jeffredo

We: The Community

1:20

Dustin Shepherd

Anthropocentric Tools for Survival

1:40

Ryan Miller

*The Co-Construction and Performance of
Masculinity in Waiting*

2:00

Eric Walker

My Journey through Apostasy and Back

Location: RM 217

Time: 1-2:20 p.m.

Moderator: Dr. Arianna Hugh

College: Social and Behavioral Sciences

1:00

Alexus Vargas and Carol Castillo

*Community College Pathways of Low Income
Latinas and Latinos*

1:20

Silvana Johnston and Nina Calub

*Parent-Adolescent Conflicts among First-
Generation College Students*

1:40

Israel Garcia

*Ketamine exposure during adolescence increases
sensitivity to cocaine in adulthood.*

2:00

Gino Howard and Stephanie Ingalls

*The effects of employment status on Perceptions of
Romantic Relationships in South Africa*

Location: RM 218

Time: 1-2:20 p.m.

Moderator: Dr. Victoria Seitz

College: Business and Public Administration

1:00

Brenda Ochoa

Private-Public Partnerships (PPPs)

1:20

Christopher Dustin

*Experiencing South Korea and gaining a
world view.*

1:40

Katherine Felix

*How effective are Measures that Predict Fiscal
Stress? A Retrospective Examination of
California Cities*

2:00

Nada Aldebasi

*The Effectiveness of Branded Mobile Phone Apps
on Users' Attitudes toward the Brand and Purchase
Intentions*

2:20

Hector Ramirez

County of Riverside Fiscal Conditions

Session II

Location: RM 210

Time: 2:40-4 p.m.

Moderator: Dr. Alexandru Roman

College: Arts and Letters

2:40

Donald Khairullah

Reconciliation of Science, Media, and Audience

3:00

**Jessica Agustin, Carlos Garcia, Christina
Quevedo, and April Baca**

Community-based Art

3:20

Alex Avila

*Multi-lingual Artistic Expression through
Multifarious Prose Performance*

Location: RM 212

Time: 2:40-4 p.m.

Moderator: Dr. Jacqueline Leventon

College: Social and Behavioral Sciences

2:40

Janhavi Dhargalkar

*Effects of Repeated SSRI Treatment on BDNF and
TrkB Receptors in Adolescent Rats*

3:00

Cody Miller and Sarah Leighton

*The Use of Self Modeling as an Instructional
Technique on Free Throw Performance*

3:20

Kevin Silberman

*Political Motivations behind Beliefs about
Homosexuality*

3:40

David Sanchez*Early-life exposure to ketamine mediates an anxiolytic effect in adulthood*

Location: RM 215

Time: 2:40-4 p.m.

Moderator: Dr. Monideepa Becerra

College: Social and Behavioral Sciences

2:40

Silvana Johnston*Emerging Adulthood and Resilience Study*

3:00

Daniel Caro*The Motivation of Employees in Non-Appealing Jobs*

3:20

Brittany Shaw*Fiscal Stress in Orange County, CA*

Location: RM 216

Time: 2:40-4 p.m.

Moderator: Dr. Guillermo Escalante

College: Social and Behavioral Sciences

2:40

Erin Alderson*Effects of repeated paroxetine on acoustic startle and pre-pulse inhibition in adolescent male and female rats.*

3:00

Lorraine Armenta

Families of sex trafficking victims: perspectives on needs and services

3:20

Ryan Radmall

Measuring Metacognition: A Comparative Validity Study of the Learning Strategies and Self-Awareness Assessment

Location: RM 217

Time: 2:40-4 p.m.

Moderator: Dr. Annie Buckley

College: Arts and Letters

2:40

James Maya*Anthropomorphism in the Film/Novel Interstellar*

3:00

Derek Mkhail*How to Human: A Speculative Approach*

3:20

Mikhel Hudrlik*Enabling and Engaging Narratives: Disability and Fanfiction*

3:40

Megan Davis*A Silenced Other: Literary Reformation for Planetary Justice*

4:00

Charles Von Nordheim*The Whirr of the Unconscious, the Spark of the Numinous: A Psychoanalytic Reading of H.G. Wells's "Lord of the Dynamos"*

Location: RM 218

Time: 2:40-4 p.m.

Moderator: Dr. Carol Damgen

College: Education

2:40

John Shield and Maria Armstrong*Glass Panels of Elusive Colour*

3:00

Luquanda Hawkins*The Faxe of Racism*

3:20

Brenda Arnold*Neurofeedback at the Institute for Research, Assessment & Professional Development***Session III**

Location: RM 215

Time: 4:20-5 p.m.

Moderator: Dr. Joseph Wellman

College: Social and Behavioral Sciences

4:20

Derrick Ocampo*Infant Memory for Emotion Experienced in a Social Referencing Paradigm*

4:40

Ashley Araiza*How the Cause of Obesity is Framed Impacts Wellbeing among Overweight Individuals*

5:00

Francisco Flores Ramirez*Altered sensitivity to the rewarding properties of cocaine in adult female c57bl/6 mice exposed to fluoxetine during adolescence*

Location: RM 210

Time: 4-5 p.m.

Moderator: Dr. Tomasz Owerkowicz

College: Natural Sciences

4:00

Liane Greaver*Defining Species Status of *Rhinichthys osculus*, the Santa Ana Speckled Dace, Among the Watersheds of Southern California Utilizing nDNA Intron Sequencing*

4:20

Patricia Holt-Torres*Potential anti-staphylococcal Properties of *Variovorax paradoxus* EPS*

4:40

Nelson Membreno*Effects of eggshell removal on embryonic skeletal development and post-hatching in the American alligator (*Alligator mississippiensis*)*

5:00

Alexa Reyes*Clostridium defficile Incidences Among Emergency Department Patients*

Location: RM 211

Time: 4-5 p.m.

Moderator: Dr. Kimberley Cousins

College: Natural Sciences

4:00

Jonathan Freeman*Using GPS to estimate slip rates of the San Andreas Fault, and other faults within a transect across the transform boundary of the Pacific and North*

4:20

Shanna Delgado

Using GPS displacement vectors to estimate slip rates of the San Andreas Fault system within the Indio Transect

4:40

Taylor Alexander*The Public's Concern over Abusive Relationships*

5:00

Moises Romero*Computational Analysis of Hydrogen Bonding Organoferroelectric Dimers*

5:20

Jeanette Jetton-Rangel*Evidence-Based Dentistry: Quantification of Margins and Uncertainty*

Arts & Letters



Joshua Adamson

Faculty Mentor: Dr. Mihaela Adamson

Department: Communication Studies

Title: *Twitter Privacy: Determinants of Sharing Behavior on Twitter*

Abstract: This study aims to explain people's personal information disclosure behaviors on Twitter by testing several predictions of the Communication Privacy Management (CPM) theory. Using a survey on a random sample of 208 California residents, the study tests the relationship between gender, education, length and breadth of experience on Twitter and personal self-efficacy on the amount of personal information disclosure. Although no significant relationship emerges between gender, education, self-efficacy, and the amount of personal information disclosure on Twitter, the results do confirm the role of experience in predicting amount of disclosure: Under the assumption that the more users experiment with Twitter affordances, the less vulnerable they feel, the results indicate that people with more variety of experiences on Twitter will tend to share more.

Jessica Agustin, Carlos Garcia, Christina Quevedo, and April Baca

Faculty Mentor: Dr. Annie Buckley

Department: Art

Title: *Community-based Art*

Abstract: This poster and presentation will highlight the research that was conducted during summer 2015 and how that research built upon the ongoing work of the CSUSB Community-based Art (CBA) initiative. By using principles of collaboration, mutuality, and non-hierarchical approaches to art and education, CBA is dedicated to making, teaching, and learning art within the local community at sites that have little to no access to art. The basis of the research conducted was to support CBA through expanded programming, evaluative surveys, structural organization, documentation, and the development of scholarly archives. The research conducted supported our art programs with community partners, including three state prisons and three local youth organizations, and allowed for qualitative research on CBA programs. Presently, the research has resulted in the formation of a Student Leadership Team that meets weekly with professor Annie Buckley to support ongoing program development, including planning an upcoming donation art exhibition and supporting ongoing programs in local community sites. These achievements continue to support this project's goals, including supporting students, communities, and participants through positive learning opportunities that provide opportunities for self-expression, communication, growth, and expanded awareness of self and others.

Alex Avila

Faculty Mentor: Dr. Kathryn Ervin

Department: Theatre Arts

Title: *Multi-lingual Artistic Expression through Multifarious Prose Performance*

Abstract: As a Black Latino attending a recognized Hispanic Serving Institute, it is an honor to be attending a nationally recognized Master of Fine Arts program at CSUSB. Growing up in a multi-lingual-cultural-ethnic community has only help to diversify my educational experience at Cal State University, San Bernardino. This experience has manifested itself through my community and literary work.

This multifarious prose performance highlights characters through various artistic expressions like video, sound, picture, poster, storytelling, acting, and spoken word (one man show) to demonstrate the linguistic cultural struggles of people learning English as a second language. This presentation highlights how multi-language users' struggle and find innovative ways to express themselves. This multifarious prose performance is filled with humor, irony, and tragedy.

Thanks to programs and events like S.C.I.P.P. • MFA • PAC Review • Ghost Town • Native Voices Annual Festival • HOWL Radio • San Bernardino County Museum • Poetry • James Irvine Foundation funded "Be Part of the Art" • Film Festival – Latino Film Festival • AAHHE • and PAMLA I have been able to develop and sharpen my craft.

Sapira Cheuk

Faculty Mentor: Dr. Annie Buckley

Department: Art

Title: *Pair*

Abstract: For the Meeting of the Minds Symposium, I plan to display 4 paintings from my series Pair. My work depicts female sexual experience, particularly the duality of the sensual and repulsive qualities of the feminine corporal form. This series, examines the notions of individual subjectivity as porous at the site of desire. These images explore moments of sensual experience - moments when the individual subject is destabilized and becomes indistinguishable from another. Instead

of illustrating a figure's features and thereby imposing a single narrative of the female body or sexuality, I use abstracted forms of watery mass created by pools of ink to draw the viewer into an atmosphere of erotic intensity between the two figures depicted. Geometric shapes outlined in gold overlays the figures and act as a placeholders for the ropes motifs that appears in my previous works, in a sense they "bound" the figures and at the same time, display the limitation of space the figures can occupied. A gloss medium is applied to the negative space inside the geometric shape, further emphasizing the differentiated occupiable space within metallic boundaries and the background of the painting. The fragmentary pencil images that surround the plural figures come from the same body but remain apart, suggesting an alternative narrative of action. Since the image is abstracted and layered, the work relies on the viewer's own "perverted" imagination to create a discourse between the two figures and ultimately allows the viewer to examine their own subjectivity.

Megan Davis

Faculty Mentor: Dr. Brenda Glascott

Department: English

Title: *A Silenced Other: Literary Reformation for Planetary Justice*

Abstract: Since the early nineteen nineties, concern over the health and prosperity of our planet has been a strong concern for those in the scientific and environmental spheres. Currently, the welfare of Earth, and the negative impacts humans have on our planet, has moved into the political and cultural consciousness of our civilizations. Moreover, the notion of apocalyptic occurrences have been an abjectly pervasive fascination within film and literature. These mediums have attempted to showcase the danger that lies before us, should we not actively inject the welfare of the Earth into the daily decisions of our lives. However, a cultural movement must supervene wherein the anthropocentric perspective is removed from culture, in favor of a planetary one. Using the novelization of the film *Interstellar* by Greg Keyes, I intend to highlight the ways in which we can apply literature outside the limiting confines of the human perspective, to shift

Earth into a perspective of utmost importance. In this way, literature can become a means to transition the mindset of human advancement and convenience, to that in which Earth can still thrive as it did long before the industrial revolution of man. For too long, Earth has served as a scenic backdrop, or as a catalyst for gripping plot lines. Now, more than ever, is the time to allow Earth's voice to adopt a first persona narrative within our works, in order to highlight the ways in which planetary concerns are not secondary to that of human's perspectives.

Ocar Hidalgo, Daniel Ridder and Joshua Ryan

Faculty Mentor: Dr. Allen Menton

Department: Music

Title: *Practical Research for the Composition of New Music*

Abstract: To compose original music, students must first research the practical specifics of an instrument or group of instruments, the intended performer or ensemble, the limitations and expectations of the premier performance, as well as the existing repertoire for the particular instrument or ensemble. All this practical information should inform the composition of a new work. Under guidance of a faculty mentor, three student composers will each undertake an individual project, carry out this research, and write an original musical composition.

Mikhel (Michelle) Hudrlik

Faculty Mentor: Dr. Jessica Luck

Department: English

Title: *Enabling and Engaging Narratives: Disability and Fanfiction*

Abstract: Critical Disability Studies is a rapidly growing field, as is the popularity of fanfiction, or fan-made stories. Fanfiction, because of its voluntary, non-profit nature, and use of established characters and/or settings, presents a uniquely versatile narrative mode which allows for inclusion of physical disability in a way that contributes meaningfully to the narrative, beyond a narrative prosthesis or inspirational purpose. Narrative Prosthesis, according to Mitchell and Snyder, is the

treatment of disability as a deviance from the cultural norm that is seen as a problem or challenge and needs to be 'fixed' by the end of the story. This presentation will look at the intersection of disability and fanfiction, how that disability is used in different ways, and how disability is moving beyond a narrative prosthesis or overcoming model. Two specific stories with explicit physical disability are discussed: "They Radiate Like Stars," which has a protagonist who has lost an arm and eye, and has extensive scarring; and "Wisteria," which includes a returned war veteran who has an amputated arm. This presentation analyzes who is disabled, how they are disabled, how disability is treated within the story and how it functions within the narrative as a whole, and why the inclusion of disability is important to these specific stories. How disability is used in fiction, and fanfiction in particular, holds ramifications for how disability is understood and treated in society at large.

Allyson Jeffredo

Faculty Mentor: Dr. Julie Paegle

Department: English

Title: *We: The Community*

Abstract: My thesis, "Only We Can Pull," is a creative response to the current state of our society and the slow, pronounced dovetail of our environment, with an emphasis on the West's, especially California's, 15-year-long drought and increasing temperatures. I believe it is important for the humanities, arts, and sciences to work together to raise the awareness of people in any method available. In my creative presentation, I will be focusing on the smallest unit, that of personal relationships, by attempting to weave together the many solitary "I's" we come into contact with on a daily basis in order to create a "we" that understands the power of community. This is to showcase a "we," a community, a people, a world, we seem to no longer be in tune with and are continually at odds with. Thus, the transformation of the speaker occurs within my creative pieces in an attempt to bring a metaphorical awareness to the importance of coming together and taking responsibility for the condition of our world. So, ultimately, we can make the fruitful changes our society needs.

James Maya

Faculty Mentor: Dr. Jennifer Andersen

Department: English

Title: *Anthropomorphism in the Film / Novel Interstellar*

Abstract: In this paper, I will be attempting to present an anthropomorphic view of Interstellar: The Official Movie Novelization. This essay presents the idea that humans have anthropomorphized the Earth, and thus destroyed it, as well as, anthropomorphized the robots in the story, constructing humanity or disallowing humanity for the robots.

Matthew McMillon & Jessica Agustin

Faculty Mentor: Unknown

Department: Art

Title: *National Conference for Higher Education in Prison*

Abstract: We will be creating a poster that explores and visually discusses our experience as presenters at the National Conference for Higher Education in Prison at the University of Pittsburgh. Our poster will also give insight to our presentation and the research that we discussed at the conference. As members of CSUSB Community Based Arts Program it is our intention for our display to both promote our programming as well as illustrate how an art program in the Prison Industrial Complex flourishes through collaboration and mutual learning.

Joel Miller

Faculty Mentor: Dr. Christopher Naticchia

Department: Philosophy

Title: *The Status of Self-Determination*

Abstract: The right to self-determination has had an interesting place in the history of international law. First arriving on the scene at the Treaty of Versailles, this concept has steadily evolved into a right that is believed to be held by all peoples. What has been of interest for many lawyers in recent years however, is whether such a right would entail a corollary right of secession? International lawyers are, for various reasons, in disagreement as to what the answer to this question is.

Ryan Miller

Faculty Mentor: Dr. Wendy Smith

Department: English Composition-Linguistics

Title: *The Co-Construction and Performance of Masculinity in Waiting*

Abstract: The idea of masculinity being performed and built within social interaction is an idea that has become extremely prevalent in multiple cultures and social groups around the world. America, in particular, is one where males are virtually expected to perform their masculinity in a large variety of social interactions and contexts. I believe one of the more prominent reasons for this societal behavior has to do with our furthering the idea itself in our popular media, specifically movies and television shows. How characters perform and address their masculinity in fictional settings on movies and television is not only a reflection of how such performance is done in reality but propagates the ideas of how it should be done, thus such performances in fact further cement how masculinity is performed and creating a cycle of affirmation for such behavior.

Derek Mkhiaiel

Faculty Mentor: Dr. Mary Boland

Department: English

Title: *How to Human: A Speculative Approach*

Abstract: A new materialist perspective on the movie "Interstellar". Specifically a focus on the plans made in the movie in order to save humanity. My argument is that if we change humanity's perspective on the subject position of planet earth from being an object, to a subject we will treat it more ethically. The desire behind this move is to preserve humanity, which I argue is consubstantial of earth and language.

Heather Roessler

Faculty Mentor: Dr. Christina Hassija

Department: MFA

Title: *Kaleidoscope*

Abstract: My work focuses on dealing with, accepting, and moving forward from the unescapable reality of

death. The repetitive experience of my dying pet rats (whom are the main subjects and focus), have forced me to think of and process my own mortality. My work is also about saying goodbye and welcoming the inevitable. The deaths of my pets have allowed me a new found perspective on life, while driving my ideas as an artist.

John Shield and Mariah Conner

Faculty Mentor: Unknown

Department: MFA Design

Title: *Glass Panels of Elusive Color*

Abstract: I am hoping to create several glass panels for an upcoming exhibition that include both intrinsic glass color and an additional applied coating that make defining the actual color of the panel elusive. These panels would be cut and shaped to mimic oversized sunglass lenses as part of an ongoing series of mine that examines the ways we see (or don't see) glass. This project is part my continuing interest in using traditional glass techniques to make work with a contemporary commentary on the uses of glass and its role as a mediator in modern culture. This project follows two recent exhibitions and I have another exhibition in the offing; it is essential in the art field to be constantly producing new work so the projected outcome of this creative activity would be producing a new body of work for upcoming exhibition opportunities.

Dustin Shepherd

Faculty Mentor: Dr. David Carlson

Department: English

Title: *Anthropocentric Tools for Survival*

Abstract: This paper attempts a pro-anthropocentric reading of *Interstellar: The Official Movie Novelization*. The goal of this paper is to challenge the notions of anti-anthropocentrism. The key to survival, as seen in *Interstellar*, is to embrace our very human perception, however limiting. This can be seen in the ways in which humans interact with non-humans and the theme of exploration. Exploration, a human endeavor and concept, is the key to survival.

Nicole Stahl

Faculty Mentor: Dr. Katherine Gray

Department: MFA in Studio Art

Title: *New Approaches to Sculptural Casting*

Abstract: The focus of this research was to learn two specific approaches of casting sculptural objects to later apply to my artistic practice. For the first part of my research, I learned the process of utilizing low-fire bismuth alloy to create a three-dimensional form. Brushable silicone was applied to a clay form that was later poured into, resulting in a metal object. The attraction to this type of metal casting is the accessibility—it can be melted simply using a standard stove top. The second portion of my research was to conduct a series of compatibility testing with different brands of glass casting material. To approach this, I fabricated a series of small objects utilizing glasses of different expansion rates and colors. These forms, which took the shape of flies, were dropped into separate square-shaped plaster-silica molds containing the standard glass we use at CSUSB. Molten material was immediately dropped on top, encasing the original colored fly. Upon cooling, I observed the resulting objects to see which had cracked (indicating incompatibility) and/or greatly distorted the original object (not preferable for artwork). The findings and knowledge obtained from both of these casting methods were then applied to my sculptural artwork.

Charles Von Nordheim

Faculty Mentor: Dr. Sunny Hyon

Department: English

Title: *The Whirr of the Unconscious, the Spark of the Numinous: A Psychoanalytic Reading of H.G. Wells's "Lord of the Dynamos"*

Abstract: Scholars credit H.G. Wells as a key shaper of the scientific imagination in the realm of literature, as the writer who established a system of narrative tropes that facilitated a direct discourse on the destabilizing promises and threats raised for the individual by technological progress—regardless of whether the products of it are wielded by imperialist Martians or

the earnest human advocates of the World State—that practitioners of fantastic fiction continue to use to this day as templates for conversations about the hopes and fears surfaced by each new device that scientists proffer. This paper seeks to complicate Wells' status as a literary innovator and to expand the accepted bounds of his discourse by suggesting that his scientific fantasies do more than uncork change-driven anxieties; these texts also suggest that sites of technology can provide a stage where the unconscious becomes reified and the individual can expel the abject and approach the numinous, where either psychic integration will occur or the death drive will prevail. The psychoanalytic approaches suggested by the work of Julia Kristeva and Carl Gustav Jung provide the theoretical lens for this paper; through it, the paper will look at "Lord of the Dynamos" for evidence of the unconscious and the opposition and interplay of the abject and the numinous. Incidental to this scrutiny, this paper aspires to persuade scholars to grant more attention to the analyzed Wells text, an unjustifiably neglected example of this writer's strong, early output.

Eric Walker

Faculty Mentor: Dr. Ahlam Muhtaseb

Department: Communication Studies

Title: *My Journey through Apostasy and Back*

Abstract: This study shares my personal experience as a college student being challenged mentally and emotionally concerning my Christian beliefs. I experienced a level of apostasy, which is the abandonment or renunciation of a religious or political belief, during the beginning of my college life. Through this auto ethnography, accompanied by personal narratives, interactive interviews and other ethnographic data, I seek to answer the question of how intellectually undeveloped Christians lose their faith while pursuing higher education. There is a possibility that college students like myself are challenged in measurable degrees to lose faith in God. Recent research shows that this conventional wisdom concerning higher education posing a threat to religious faith appears to be more "myth" than measurable fact. I take the stance to show that college students undergoing apostasy

is not a myth by sharing qualitative data from an ethnographic study of my personal experience along other accounts of students' experiences that show change in college students' spirituality.

Business and Public Administration



Nada Aldebasi

Faculty Mentor: Dr. Victoria Seitz

Department: Marketing

Title: *The Effectiveness of Branded Mobile Phone Apps on Users' Attitudes toward the Brand and Purchase Intentions*

Abstract: The mobile device market, particularly for smartphones, has experienced incredible growth over the past five years. What sets this market apart is the use of applications or apps for just about anything from information to purchases. The purpose of the study was to examine the effectiveness of branded apps on consumers' attitudes toward brands as well as purchase intentions. The population for this study were consumers 18 to 45 at a southwestern university in the United States, resulting in 54 respondents participating in the survey. Results indicated that using branded apps strongly influenced users' attitudes toward brands, however, using branded apps had a smaller impact on purchase intentions.

Christopher Duarte Dustin

Faculty Mentor: Dr. William Donohue

Department: Management

Title: *Experiencing South Korea and Gaining a World View*

Abstract: Why traveling with CSUSB Study Abroad is a good fit for a business student. In this presentation I will be expressing the answer to this question and also sharing how it has in fact changed my outlook on the

world. Because we are no longer in a regional economy I will be sharing how South Korea has advanced in many ways through literature especially with a strong tie to Confucianism. In this presentation, I will be sharing how I recently travelled to South Korea and learned first-hand about the periods from the pre-modern society on through the colonial period of World War II. During that period they actually suffered cruel persecution and a ban on the Korean language and cultural aspects with intellectuals leaning towards socialism and communism. Then I will describe how the country pulled through these hard times, through the Korean War, and later a financial crisis. Still this country was able to come out of this hardship victorious and hold on to many traditions and culture throughout. We can see that they have had a strong leaning towards the education of their children unlike the United States. In this presentation you will accompany me on a journey with the Study Abroad program at CSUSB into this new world. You will see how the Study Abroad programs at CSUSB allows students to explore and learn about other cultures while obtaining academic credit towards their degree. A win-win for everyone!

Katherine Felix

Faculty Mentor: Dr. Marc Fudge

Department: Business Entrepreneurial Management

Title: *How Effective are Measures that Predict Fiscal Stress? A Retrospective Examination of California Cities*

Abstract: Public finance literature has an abundance of research that has examined the topic of fiscal stress, from various perspectives, albeit with slightly different measures of the same mutual term. After several decades of incremental development there is now available an extensive body of scholarly and practical work on the subject. But these efforts have not yet converged on a single approach, much less a specific system of indicators that optimally balances predictive efficacy with parsimony in terms of requirements for data and analytic effort. Partisans of various conceptual and practical approaches debate issues that include, but are not limited to, the relative merits of explicitly comparative versus absolute measurement, the use of accrual versus cash-based data, focus on the general fund or all funds, and the precise nature of what should be measured in the first place. The aim of this study is to examine if commonly relied upon measures of fiscal stress are accurate in their predictions. Specifically, the research will examine a sample of California cities, including those who have recently filed for bankruptcy (San Bernardino, Vallejo and Stockton) to ascertain the appropriateness of common measures of fiscal stress. To conduct the analysis, the content of each municipality's Comprehensive Annual Financial Report (CAFR) will be examined. The aim of this research study is to retrospectively explore whether commonly used measures that assess fiscal stress are effective, in particular to the cases of the three California cities who recently filed for bankruptcy.

Brenda Ochoa & Cruz Robles

Faculty Mentor: Dr. Alexandru Roman

Department: Public Administration

Title: *Private-Public Partnerships (PPPs)*

Abstract: There has been an increase in government issues within the last decades, especially after the Great Recession of 2007-2008. For instance, there has been constant budget cuts that have significantly weakened and reduced government capacity to address public needs. As a result, we have been forced to identify new and entrepreneurial needs to address social issues and to keep providing high quality public services, in spite of decreasing capacities. Therefore, the main

objective of this research is to examine and identify best procurement practices in regards to Public-Private/Non-profit Partnerships (PP/NPs) both for the organizational level as well as for policy level. This research also provides a comprehensive yet accessible, overview of PP/NPs. While it touches on the numerous possible forms of partnerships between the public, private and nonprofit sectors – it focuses primarily on one type of such partnerships - infrastructure PPPs. It provides a detailed discussion of their structures and benefits. Additionally, it explores the complexities associated with establishing and managing PP/NPs relationships.

Furthermore, it is important to note that PP/NPs are complex contractual agreements while they are also a creative development that generates additional revenues. Public-private/nonprofit partnerships are regularly touted, sometimes to the point of excess, as being innovative and all-encompassing solutions to these budgetary constraints. Such contractual agreements are typically linked with increased quality, improves service delivery, cost saving and lower costs of financing. And while PP/NPs are surely interesting and creative mechanism, they are not necessarily as manageable or as effective as popular discourse as media would lead one to believe. In fact, it's quite the contrary.

Hector Ramirez

Faculty Mentor: Dr. Marc Fudge

Department: Public Administration

Title: *County of Riverside Fiscal Conditions*

Abstract: The County of Riverside's fiscal conditions were evaluated. The County faces serious fiscal issues stemming from discretionary spending that exceeds discretionary revenue. The Great Recession of 2008 precipitated the County's economic downturn. However, Federal and State budget cuts coupled with legislative acts in Sacramento hastened the process. It is recommended the County implement cost-control measures, seek State funding, and restructure union contracts in pursuit of fiscal solvency.

Israel Sanchez**Faculty Mentor: Dr. Yongseok Jang****Department: Business Administration****Title:** *Developing Taxonomy of Talent Misuse of Entrepreneurial Ventures*

Abstract: By compiling cases of talent exploitation of entrepreneurial ventures, this study aims to build theoretical foundation for an ethical assessment of practices to safeguard the hiring practice of young companies. We tackled this issue by presenting a comprehensive taxonomy of talent abusing among entrepreneurial ventures, by focusing on young talent. The term "intern exploitation" falls short of providing a comprehensive notion of the reality that many companies exploit not only interns but also young recruits. Further, some companies disguise their employees as interns to achieve or maintain some legal status aiming to obtain associated benefits. So it gets more difficult to separate interns from regular employees, which further makes it irrelevant if one only focuses on interns. With the given fuzzy reality, we try to develop a conceptual framework that is comprehensive enough to capture more potential victims in similar situations. This project involves multiple tasks of field research using diverse sources, including practitioners, civic organizations for labor issues, labor lawyers, labor unions, and/or government organizations. We reviewed existing cases to develop a rough consensus of the subject matter, based on the cases collected both from U.S. and South Korea. After a review of the cases, we develop a taxonomy of talent misuse, by sorting cases according to their salient characteristics. The goal is to provide a fundamental ontology of entrepreneurial talent misuse. The contribution here to the academic community is this taxonomy, as it will serve as a basis of conceptual framework of the subject matter.

Brittany Shaw**Faculty Mentor: Dr. Marc. Fudge****Department: Public Administration****Title:** *Fiscal Stress in Orange County, CA*

Abstract: Fiscal policies from the federal level of government aim to adjust financial conditions and economic activity for the entire country, and the role of this higher authority to use spending and taxation for the regulation of state and local activities has expanded in the face of a recessed economy. Intergovernmental fiscal relations have become more complex over the course of the last 50 years, and fiscal authority imbalances between the various levels of government not only threaten democratic efficiency but they undermine the ability of legislators to act as responsible principals charged with effectively carrying out public will in a sustainable, accountable, and transparent way. This research assesses the financial condition of a municipality, the County of Orange in Southern California, and determines the degree of fiscal stress the county currently faces. It also explains how future financial sustainability and solvency can be seriously threatened by budgetary decisions made by current officials. An explanation of how legislative reforms have shaped the current financial issues in Orange County is offered, and specific strategies are proposed which theoretically could improve the county's long term financial health in a manner marked by enhanced equity and less risk than the strategies currently employed.

Natural Sciences

**Joseph Aceves****Faculty Mentor: Dr. Sally McGill****Department: Geology****Title:** *Using GPS to model slip rate of the San Andreas Fault and other faults within a transect across the plate boundary passing through San Geronio Pass*

Abstract: Using Global Positioning System (GPS) observations along with a model of elastic motion, the slip rates for the San Andreas Fault (SAF), San Jacinto fault (SJF), and many other faults on the Pacific-North America plate boundary were determined in the vicinity of San Geronio Pass. After testing 414,722 slip rate combinations, the slip rate for the San Andreas Fault was determined to be between 4 and 16 mm/yr., with the best fitting slip rate being 8 mm/yr. The slip rate of the San Jacinto fault was determined to be between 6 and 18 mm/yr. with the best fitting slip rate being 18 mm/yr. Other faults passing through the San Geronio Pass transect had slip rates ranging from 0 mm/yr. to 6 mm/yr.

Ruby Aispuro**Faculty Mentor: Dr. Jeremy Mallari****Department: Chemistry****Title:** *Developing Chemical Tools to Probe Malarial Protease Biology*

Abstract: The goal of the research is to develop chemical inhibitors that selectively block specific

metalloproteases. We will be doing this by developing an activity assay (which we are currently doing now), design, synthesize and test inhibitors against metalloproteases, target inhibitors in *P. Falciparum*, and analyze phenotypes. We are currently making assay in order to start testing them and seeing which assay work best.

Alexander Beechko**Faculty Mentor: Dr. Angela Horner****Department: Biology****Title:** *Effects of Aging and Training on Muscle Shortening Properties*

Abstract: Mammalian muscles are extremely plastic, rapidly remodeling in response to exercise, disuse, or aging. Aging is associated with a decline in muscle performance, whereas exercise often results in mechanical or energetic changes that enhance performance. I aim to understand how exposures to regular exercise, and the genetic propensity for exercise, counteract age-related declines in muscle performance. Although numerous studies have documented age-related changes to muscle and locomotor performance, our understanding of how genetics and exercise alter normal muscle aging is limited. Although the basic contractile machinery of skeletal muscles is highly conserved across vertebrate evolution, variation in fiber type composition provides the necessary variation in force, speed and efficiency needed to perform diverse functions. Fiber-type composition can vary among

different individuals and can change rapidly in response to a muscle's loading conditions. Therefore, fiber type composition is an expressed phenotype based on both genetic history and changes to gene expression patterns. Despite knowing fiber type composition is an important determinant of locomotor performance, it has been difficult to discern the effect of an individual's genotype from their mechanical history. My proposed dissertation project aims to evaluate the role of genetics and plasticity on physiologically relevant traits both across generations and within an individual.

Hayley Boiteau

Faculty Mentor: Dr. Nicole Dabbs

Department: Kinesiology

Title: *The Relationship between Sway Medical's Concussion Management System Application and Biodex Balance System SD during the Balance Error Scoring System Test*

Abstract: Balance testing has increasingly become one of the common assessments in a battery of tests for concussions for athletes. Concussion testing has become a prime factor in an athlete's return-to-play safety. Baseline results have provided trainers and coaches' quantifiable data to effectively assess the severity of an athlete's injury. Purpose: The purpose of the study is to determine the relationship between SwayMedical's Concussion Management System Application and Biodex Balance System SD during the Balance Error Scoring System (BESS) test. Methods: Ninety Division II athletes, both male and female completed a single session balance test. All participants read and signed informed consent. Prior to any testing, all participants were familiarized with the BESS protocol. Participants completed SwayMedical's baseline balance test with an iPod strapped via chest harness, while completing the BESS protocol on the Biodex Balance System concurrently. Both protocols consisted of five stance conditions: Double Stance (FT), Tandem Left (TL), Tandem Right (TR), Single Left (SL), and Single Right (SR). Each condition was performed for ten seconds with eyes closed. Pearson's r correlations were conducted to analyze the relationship between the two systems for all variables. Results: A significant ($p < .000$), strong, and

negative correlation for SR ($r = -.710$) and SL ($r = -.762$) was found. Additionally, a significant ($p < 0.00$), strong, and negative correlation between Overall Score ($r = -.733$) for the Biodex and Sway app was found. However, there was no significant ($p > 0.05$) differences for DS, TL, and TR. Conclusion: There is an overall significant relationship between the Biodex Balance System and SwayMedical's Concussion Management System Application. Consequently, SwayMedical's app is a valid tool that can be used by trainers and coaches to assess concussions in the trainer's room or on the field.

Willem Bosboom

Faculty Mentor: Dr. Sally McGill

Department: Geology

Title: *Analysis of Crustal Deformation along a Transect Across the Pacific-North American Plate Boundary Passing through San Luis Obispo*

Abstract: In California, where population is dense and tectonic activity is high, it is vital to better understand plate movement to prepare for natural disaster. By estimating slip rates of faults in California, we can better prioritize areas for preventative safety measures. This study contains a geophysical analysis of plate movement in a transect across the Pacific-North American plate boundary passing through San Luis Obispo California. The purpose of study was to analyze movement of the San Andreas Fault as well as adjacent faults to determine relative contributions to plate movement as a whole. Within the upper crust, the Pacific and North American plates are locked together as a result of friction on the fault plates. Below the brittle-ductile transition, fault creep occurs, which leads to bending of the upper crust, which can be measured by GPS. Previously published GPS site velocities from the San Luis Obispo transect were used to infer the slip rates along each of the faults in the transect by comparing the observed GPS velocity profile, with the profile predicted by over 21,000 combinations of fault slip rates, using the locking depths inferred from seismicity. The slip rate combination that produced a velocity profile that best adhered to the observed velocity profile resulted in the following slip rates: Hosgri-San Gregornio fault, 4mm/yr.; Rinconada

fault, 0mm/yr.; San Andreas fault, 32mm/yr.; Hilton Creek fault, 4mm/yr.; White Mountain fault, 4mm/yr.; and Fish Lake fault, 2mm/yr.

Lauren Bryant

Faculty Mentor: Dr. Nicole Dabbs

Department: Kinesiology

Title: *The Effects Exercise Induced Muscle Soreness on Balance and Pain*

Abstract: The purpose of this investigation was to determine the effects of exercise induced muscle soreness on balance and pain. Methods: Eight males and females volunteered to participate in 5 testing sessions. Day one, participants performed a dynamic warm-up followed by familiarization of all testing protocols. Day 2, baseline measures were obtained. Double leg (DL) static and dynamic balance was tested on the Biodex Balance System SD. The balance tests consisted of Double Leg Static Balance (DLSB) and Double Leg Dynamic Balance (DLDB). Pain in the quadriceps was measured using a visual analogue scale. Participants then performed the muscle damage protocol consisting of 40% of body weight front-loaded; Bulgarian Split Squats. Day 3-5, participants returned to the lab, where identical balance and pain measures were repeated after performing the damage protocol. To monitor the effects of the damage protocol, participants returned to the lab for 24, 48, and 72 hours to re-test for balance and pain measures. A 1x5 repeated measures ANOVA was used to analyze the difference between baseline and all time points for each variable. Results: There was a significant ($p < 0.05$) difference between 24, 48, and 72hr time points in the pain scale. There was no significant ($p > 0.05$) difference between all-time points in both double leg balance conditions. Discussion: These results indicate the pain scale results show the damage protocol did induce DOMS between each testing day. However, the DOMS was not severe enough to cause impairments in DL static and dynamic balance.

David Challacomb

Faculty Mentor: Dr. Alan Smith

Department: Geology

Title: *X-ray Fluorescence Analysis of Basaltic Flows at Amboy Crater: Can a Calibrated, Handheld Niton XRF Analyzer Define Relative Age Relations between Flows?*

Abstract: This project sought to determine some of the capabilities of the handheld Niton x-ray fluorescence analyzers (Niton) when used for geologic fieldwork. In particular, analysis of lava flows at Amboy Crater, California was undertaken with the goal of determining relative ages by measuring nickel concentration in the lavas and pyroclastic deposits and comparing results to predicted fractional crystallization trends. Levels of nickel when plotted against zircon seemed to show a complex series of cone and flow events; however variability in composition was significant enough to make initial comparisons somewhat subjective. The Niton's accuracy and precision in measuring various other elements was undertaken in order to determine whether measurements of those elements could be reliably used in estimating the relative age of the flows. Results varied by element and by the setting under which measurements were obtained, but some of the other elements besides nickel did show promise. Results indicate further field work is required to accurately characterize the utility of the Niton for this kind of geological work.

Catherine Danh and Michael Morikone

Faculty Mentor: Dr. David Rhoads

Department: Biology

Title: *Gene Expression of Arabidopsis thaliana in Response to Heat Stress*

Abstract: Unlike members of the animal kingdom, plants are immobile, meaning that they need a wide variety of mechanisms for dealing with stressors. Heat is one such stressor. Normally, heat will denature, or decrease functionality, of proteins. In order to lessen the effects of heat, plants use heat shock proteins (HSPs), whose function is to protect other proteins from being denatured. To make proteins, the cell first makes

RNA from DNA. DNA, the genetic information storage medium of a cell, is then copied and modified into RNA. RNA is essentially a set of instructions for creating proteins. In order to monitor the expression (production) of these HSPs, we measure RNA levels by isolating RNA from heat-stressed leaves of the model organism *Arabidopsis thaliana*. We are working with different lineages of *Arabidopsis*: wild-type and transgenic. Wild type is the unmodified plant that is found in nature, while the transgenic line has been modified to continuously produce a mitochondrial small HSP (sHSP). Our hypothesis is that in the transgenic lineage, continuous production of this mitochondrial sHSP is causing a significantly large increase in the expression of other HSPs, including the native nuclear gene that typically responds to heat stress.

Shanna Delgado

Faculty Mentor: Dr. Sally McGill

Department: Geology

Title: *Using GPS Displacement Vectors to Estimate Slip Rates of the San Andreas Fault System within the Indio Transect*

Abstract: To better predict the potential magnitude of an earthquake and thus prepare appropriate precautions for associated hazards, it is essential to understand what a fault is doing from every facet. Elastic rebound theory aids in this understanding. The theory entails that as shear stress is applied along a fault and strain accumulates in the upper crust due to bending of the tectonic plates, so does elastic energy; when friction is exceeded, slip on the fault occurs, releasing the elastic energy that had been stored. The purpose of this study was to relate the rate of elastic bending of tectonic plates at surface to the true slip rate at depth. Modeling methods using an equation from elastic theory were used to compare the velocity profile predicted for various slip rates with measured GPS velocities. This project examines transect across the Pacific-North American plate boundary bisecting a portion of the San Andres Fault (SAF) system near Indio, California. This transect spans four major faults, which are the Rose Canyon fault (RCF), Julian section of the Elsinore Fault(EFJS), Anza section of the San Jacinto Fault

Zone(SJFA), and Coachella section of the San Andreas Fault Zone (SJFC). The locking depths for each fault were estimated from the maximum depth of seismicity. The preferred model produced slip-rates yielding 4 mm/yr. for the RCF, 1 mm/yr. for EFJS, 19 mm/yr. on SJFA, and 21 mm/yr. on the SAFC.

Mark Dery

Faculty Mentor: Dr. James Ferrari

Department: Biology

Title: *Characterization of a Field Strain of the Mosquito Culex Quinquefasciatus for the Distribution of Esterase Activity Variants Associated with Insecticide Resistance*

Abstract: In the mosquito *Culex quinquefasciatus* Say, the mechanism of resistance to organophosphate and carbamate insecticides is a type of metabolic resistance, which results from an increase in esterase activity that sequesters the insecticide. The esterases responsible for this elevated activity are associated with two closely linked esterase loci, Est alpha and Est beta, which code for several forms of esterase enzymes. Elevated esterase activity is due to the gene amplification of one or both of these genes. Research on insecticide resistance is an important topic to be studied in order to insure that insect pests can continue to be controlled to prevent the outbreak of disease and to control agricultural pests, and also because it provides a great way to study the mechanisms of evolution. This work characterizes a field strain of *Culex quinquefasciatus* for esterase activity and electromorph identity by conducting esterase and protein assays, as well as polyacrylamide gel electrophoresis on a sample of individual mosquitoes from the strain. The characterization of this field strain provides a better understanding of which esterases are present in the population that was collected and that is now being raised for future work. This characterization is necessary before any further work on this strain can be conducted to provide a baseline for esterase activity.

Janelle Doyle, Estefania Gonzalez, and Marlene Noriega

Faculty Mentor: Dr. Tomasz Owerkowicz

Department: Biology

Title: *Variability in the Post-hatching Growth Trajectory of Alligator Hatchlings Incubated with and without the Eggshell*

Abstract: Our project investigated the importance of two putative roles of the calcareous eggshell in eggs of the American alligator: eggshell as a reservoir of calcium for embryonic development and growth, and eggshell as a barrier to bacterial infection. Using a novel experimental approach – peeling the eggshell and incubating the eggshell-less eggs, we tested three hypotheses: (1) alligators without eggshell show reduced skeletal maturity at hatching; (2) inhibition of carbonic anhydrase enzyme has the same effect as peeling the eggshell; and (3) bacterial inoculation results in greater embryonic mortality in the absence of the eggshell. Our (preliminary) results suggest that the eggshell is an important source of calcium, but is not required to prevent infection of egg contents.

Cynthia Farr

Faculty Mentor: Dr. Carol Hood

Department: Physics

Title: *Photometry on Images of Comet 2P/Encke*

Abstract: Photometry on the images of Comet 2P/Encke will allow us to extract data to analyze in order to find the pole orientation and the rotational period. This presentation will mainly focus on the Photometry that was applied to the reduced CCD images of the comet and briefly cover the produced light curves. More observations and analysis will need to be completed in the next few years to complete the analysis on Comet 2P/Encke.

Jonathan Freeman

Faculty Mentor: Sally McGill

Department: Geology

Title: *Using GPS to Estimate Slip Rates of the San Andreas Fault, and other Faults within a Transect Across the Transform Boundary of the Pacific and North American Tectonic Plates through Desert Hot Springs.*

Abstract: I used elastic modeling of GPS data from a transect across the Pacific/North American plate boundary near Desert Hot Springs to estimate the slip rates of a section of the San Andreas Fault, as well as other major neighboring faults. This transect extends in a northeastern direction from the Pacific Ocean, about 91 km west of San Diego, California, to about 109 km southeast of Las Vegas, Nevada. The faults I tested within this transect, along with the obtained slip rates, are the Newport-Inglewood fault: 0-3 mm/yr, Elsinore fault: 3-7 mm/yr, San Jacinto fault: 11-19 mm/yr, the Banning and Mission Creek branches of the San Andreas: 5-20 mm/yr and 2-20 mm/yr respectively, Copper Mountain fault: 0-2 mm/yr, Mesquite Lake fault: 0-2 mm/yr, and Cleghorne Lake fault: 0-1 mm/yr.

Liane Greaver

Faculty Mentor: Dr. Anthony Metcalf

Department: Biology

Title: *Defining Species Status of *Rhinichthys osculus*, the Santa Ana Speckled Dace, Among the Watersheds of Southern California Utilizing nDNA Intron Sequencing*

Abstract: *Rhinichthys osculus*, the Speckled Dace, is the most widely distributed freshwater fish in the Western United States. It inhabits small flowing streams and springs. While at one time this species was found in countless numbers in many California watersheds, its populations have been greatly reduced due to environmental and ecological factors. Locally, *R. osculus*, known as the Santa Ana Speckled Dace, can be found in the Santa Ana Watershed tributaries, with its nearest neighbor populations inhabiting Owens Valley, Central Coast, and Colorado River inland waters. While mitochondrial DNA is an effective introductory look

at the characterization of these varying populations, a more definitive analysis requires genetic information gathered from the sequencing of nuclear DNA markers. Specifically, within nuclear DNA exists segments called introns, which do not code for expression of proteins. Consequently, they are less subject to the effects of natural selection and therefore are highly conserved regions among the species while also being highly variable between populations. By utilizing the genetic sequencing differences between populations we can show the Santa Ana Speckled Dace to be a “distinct population segment” among those throughout California.

Tamika Hicks

Faculty Mentor: Dr. Monideepa Becerra

Department: Health Science and Human Ecology

Title: Racial/Ethnic Disparities in Involuntary Detention in California Emergency Departments

Abstract: Background: Racial/ethnic health disparities are a major public health issue; with much of literature focusing on chronic conditions. Given the rise of initiatives such as Black Lives Matter, among others, evaluating such disparities in detention, incarceration, etc. is also necessary. In this study, we evaluated the racial/ethnic disparities in 5150 holds. 5150 is an involuntary psychiatric hold for 72 hours, placed by members of attending staff, peace officer, or another professional designated by the County. / Methods: The California Office of Statewide Health Planning and Development (OSHPD), 2008-2010 database, which contains discharge data abstracts for every patient hospitalization from every ED in California, was utilized. Our study population was those at least 18 years of age, with primary dependent variable of 5150 hold and study population characteristics of age, race/ethnicity, sex, poverty quartile, insurance status, and other sociodemographic characteristics. Descriptive statistics, followed by chi-square and multivariable regression analyses were conducted with alpha less than .05 noting significance. Results: The study results demonstrated that Blacks and Hispanics were 57.2% and 154.5% more likely to be placed on a 5150 hold, respectively,

as compared to non-Hispanic Whites. Similarly, females were 52% more likely to be detailed for 5150, compared to males. Conclusion: Our study demonstrates racial and ethnic disparities in 5150 holds, demonstrating a higher burden of involuntary detention among minority populations. Community-based resources for mental illness as well as policy implications to reduce unnecessary detention among minorities are critical.

Jay Hight

Faculty Mentor: Erik Melchiorre

Department: Geology

Title: Evaluation of the Possible Diagenetic Origin of Azurite Suns from the Malbunka Mine, Northern Territory, Australia

Abstract: Unusual azurite “suns” from the Malbunka Copper Mine, Australia have carbon and oxygen isotope values consistent with formation under diagenetic conditions different from the conditions that azurite is commonly believed to form. Carbon isotope values suggest formation from diagenetic basin carbonate, and not marine limestone or atmospheric carbon, a more common genesis environment. Oxygen isotope values were used with established paleo thermometry equations, indicating the azurite disks formed at temperatures above ambient surface temperatures. These temperatures cannot be explained by a volcanic heat source, leaving deep formation as the probable environment. The formation of the azurite at 5 to 16°C above ambient surface temperatures would correlate to a depth of 0.3 to 1.6 km within the Amadeus basin. Morphological comparison of azurite disks with Ediacaran fossils suggests that these are not fossil replacements, despite rough similarities, as the azurite disks do not have bilateral symmetry. The evidence suggests that the Malbunka azurite disks formed in a unique environment, quite different than the textbook interpretation as a surface weathering product.

Patricia Holt-Torres

Faculty Mentor: Dr. Paul Orwin

Department: Biology

Title: Potential Anti-staphylococcal Properties of *Variovorax Paradoxus* EPS

Abstract: Bacteria are ubiquitous to most environments and prokaryotic genes which encode for both antibiotic and antibiotic-resistance pathways are ancient. In addition, environmental microorganisms are reservoirs for resistance genes such as β -lactamase(s) and fluoroquinolone(s). The need for novel antibiotics has risen with the increase in number of bacterial species possessing antibiotic resistance genes. However, approval of novel antibiotics has decreased sharply in the past 30 years with the most commonly given reason for lack of approvals is insufficient economic incentives. *Variovorax paradoxus* EPS has been observed to have anti-staphylococcal properties when grown in co-culture with *Staphylococcus aureus*. *V. paradoxus* EPS is a ubiquitous Gram-negative β -proteobacterium and has been identified as a constituent of various soils and pond waters through rRNA based detection. Currently there are no known pathogenic strains of *V. paradoxus* EPS. Previous genetic analysis of *V. paradoxus* EPS has identified three loci, at least one of which is suspected to encode for a non-ribosomal peptide synthetase (NRPS) which synthesizes the suspected anti-microbial molecule. We hypothesize that expression at one or more of these loci will correlate with production of this anti-staphylococcal agent and be initiated by exposure to *S. aureus*. In our current work we are developing assays to qualitatively analyze the killing of GFP *S. aureus* on agar plates. This will include screening assays to measure cell lysis as well as the use of our transposon library to identify antibiotic synthesis genes. We are also developing assays to quantitatively analyze killing of *S. aureus* in co-culture.

Zakkary Hudson and Channing Toomey

Faculty Mentor: Dr. Nicole Bournias-Vardibasis

Department: Biology

Title: Development of an In Vitro Protocol for *Drosophila Melanogaster* Midgut Cells

Abstract: The potential therapeutic benefits of adult stem cells have created a need to establish a variety of in vitro models to facilitate their study. In the common fruit fly, *Drosophila melanogaster*, adult stem cell populations have been identified in the nervous, reproductive, and digestive systems. The *Drosophila* midgut has emerged as a robust model system to study the influence of different signaling pathways and environmental influences on the biology of intestinal stem cells. The ability to culture these cells will facilitate further exploration of these mechanisms and in our case it will enable us to develop toxicology assays and also further continue our work on aging mechanisms. Thus far, no successful cell cultures of the digestive system have been reported. In this study the midgut of *Drosophila*, an organ very similar in structure and morphology to that of the stomach, small intestine and colon in humans, was used because of the reported presence of adult intestinal stem cell (ISC) population. In order to establish a culture of this tissue, a procedure for its extraction, dissociation, and maintenance in vitro needed to be developed. Utilizing micro-surgery techniques, successful extraction of the targeted tissue was accomplished. A combination of chemical dissociation using a proteolytic enzyme and mechanical dissociation using a micro-homogenizer proved effective in isolating all cell types within the midgut. Standard *Drosophila* Schneider’s media supplemented with 10% FCS and other factors proved sufficient in maintaining the viability of several cell types. Preliminary observations of cellular clusters give a strong indication of cellular proliferation. Future studies will include the development of a protocol to track and isolate the ISC’s in order to confirm differentiation.

Maylen Jackson**Faculty Mentor: Dr. Monideepa Becerra****Department: Health Science and Human Ecology****Title:** *Association between Unmet Mental Health Need and Sleep Apnea among U.S. Veterans*

Abstract: Objective- The current empirical evidence has demonstrated a putative association between mental illness and other chronic conditions, including sleep apnea. The literature, however, remains limited on addressing the association between unmet mental health need and prevalence of sleep apnea. Given the high prevalence of both mental illness and sleep apnea among Veterans, in this study we addressed such a gap in the literature by focusing on the said population. Methods- We utilized the 2008-2013 National on Drug Use and Health data a national population-based survey in the United States. Survey-weighted univariate and bivariate analysis were utilized. A total of 13,273 Veterans were included in the study, representative of annual population estimate of 24,571,997. Results- A prevalence of past year sleep apnea was 6.1% while prevalence of past year unmet mental health need was noted to be 2.7% among Veterans in our study. A significantly higher prevalence of sleep apnea was found among those with unmet health need as compared to those without such need (10% vs. 6.0%). Similarly, a significant association was noted between sleep and age (50-64ys 8.4% vs. 18-34 yrs. 2.5%), sex (males 6.3% vs. female 3.9%), and marital status (currently married 6.7% vs. not currently married 4.8%). In addition, higher prevalence of sleep apnea was noted among those with asthma, as compared to those without (14.4% vs.6.0%). Conclusion- The unmet mental health need and sleep apnea nexus is significant among the US Veterans. Such results justify the need for integrated care in order to address the association burden of increased sleep apnea among Veterans with unmet mental health need.

Abigail Lopez**Faculty Mentor: Unknown****Department: Public Health****Title:** *Maternal Mental Illness and Postpartum Outcome: An Analysis of California Inpatient Data*

Abstract: Background: Pregnancy and child-related complications are leading causes of maternal morbidity and mortality. The limited national health objectives of maternal, infant, and child health lack to address the maternal mental health need. The absence of sufficient maternal education and awareness bring a toll to the health of future generations. For this reason, it is critical to quantify the importance of maternal mental health to establish better preventable measures to ensure a healthier future for mothers and children. Methods: Data was obtained from the Office of Statewide Health Planning and Development (OSHPD) 2008-2010 inpatient data. The primary independent variable was mental illness defined as mood disorders. The dependent variables were pregnancy birth outcomes defined as fetal distress, poor fetal growth, and postpartum hemorrhage. Descriptive statistics followed by bivariate analysis (chi-square) were utilized with alpha less than .05 denoting significance. Results: Major key findings of the study were significant correlations ($p < 0.05$) between mood disorders and the adverse outcomes of poor fetal growth and postpartum hemorrhage. Women with mood disorders had 1.9% of poor fetal growth as compared to those without (1.4%). In regards to postpartum hemorrhage, the prevalence was highly significant in women with mood disorders opposed to those without (4.6% vs. 2.6%). Results showed no association ($p > 0.05$) between mood disorders and fetal distress. Conclusion: This study demonstrated the negative burden of maternal mood disorders on postpartum outcomes. Given the empirical evidence of the study, addressing the maternal mental health status is a key public health issue.

Noah Ghossein**Faculty Mentor: Dr. Angela Horner****Department: Biology****Title:** *The Influence of Activity and Age on Endurance in Mice Selected for High Voluntary Wheel Running*

Abstract: Voluntary locomotor activity may be affected by a variety of intrinsic factors (e.g., physiology) and environmental factors (e.g., substrate). Voluntary activity is known to decline with age in mammals due to decreases in neurological motivation and musculoskeletal vitality. Because disuse and aging exhibit similar pathologies and / performance deficits, isolating the influences or effects of a single factor is difficult. In this study we used house mice that have been selectively bred for voluntary wheel running over 70 generations in order to determine the effects of varying activity level and age on endurance. A total of 32 mice from four control (C) and four high wheel running (HWR) lines were housed either in cages with monitored wheels (active treatment: AT) or in cages with no wheels (inactive treatment: IT). Endurance was measured as time to exhaustion during an incremental speed test on a treadmill elevated to nearly 30°, and was tested for each mouse at two early stage aging time points (14 and 16 months). For mice with wheel access (N=16 / AT), daily wheel revolutions were recorded at 0.25-0.5 Hz for the month prior to endurance testing. Additionally, the duration and number of pauses during each mouse's two hour peak activity was recorded to quantify the intermittency of an individual's wheel activity. HWR lines demonstrated significantly greater endurance times, regardless of treatment or age. However, endurance performance decreased significantly with age in all line x treatment combinations except for the HWR-AT group, which maintained nearly the same mean performance times. Our results suggest that activity level and motivation are both important contributions to age-related decline in locomotor performance.

Jeanette Jetton-Rangel**Faculty Mentor: Dr. David Marshall****Department: Biology-Premed****Title:** *Evidence-Based Dentistry: Quantification of Margins and Uncertainty*

Abstract: Decision-making in any patient-provider relationship makes use of best estimates of intervention outcomes regarding service options when developing personal oral healthcare plans. These best estimates, however, may be derived from a context of less than quality evidence, or evidence that lacks accuracy subsequent to assessment. Thus, clinicians and their patients require a scale from which best estimates of current knowledge may be judged in relationship to true values. The purpose of this study is to quantify the margins of best estimates of a subject of interest and their uncertainties. Using evidence-based research methodology and manufacturer specifications allow for best estimates of upper and lower (failure) performance requirement margins of a subject of interest to be quantified along with error metrics. As well, evidence-based research quantifies clinician's critical values, the value at which a clinician determines clinical failure of a subject of interest. The results set forth theory and metrics of how clinicians may compare best estimates of a subject of interest from published studies and systematic reviews. With quantification of margins and uncertainties, clinicians may rank on a linear scale best estimates in relationship to best estimate of true value (upper performance requirement), critical value, and a lower performance requirement. With quantification of margins and uncertainties, clinician will be better prepared to judge published best estimates of intervention outcomes of a subject of interest against true values and other best estimates of performance reducing publication bias of less than quality evidence.

Gabriel Lopez**Faculty Mentor: Dr. Cory Johnson****Department: Mathematics****Title:** *Infinity+1*

Abstract: When children play Superheroes and constantly try to one-up each other's powers, it's not unusual for them end up arguing over whether or not "infinity," "infinity plus infinity," and "infinity times infinity" are valid measures of super strength. While most people would look upon this exchange with a look of amusement, those two kids might be on to something a bit more sophisticated. This presentation is on Georg Cantor's famous theorem which states that there is no greatest cardinal number of a set. That is, there cannot be a "biggest" collection of items in terms of how many items are in said collection, or set. This would imply that not only are there sets with an infinite number of items, and then other infinite sets with even more items, but if one were to construct a set which contained the number of how many items are in these increasingly infinite sets, this set would also be infinite. This presentation will explore and discuss this seemingly counter-intuitive fact of mathematics as well as take a look at some of the paradoxical statements which accompany this theorem, and the how and why these contradictions led mathematicians to reform set theory and bring about modern practices and axioms in set theory.

Joseph Madrid**Faculty Mentor: Dr. Nicole Bournias-Vardiabasis****Department: Biology****Title:** *Prioritizing Chemical Constituents of Tobacco for Screening of Skeletal Developmental Toxicity using ToxPI*

Abstract: Though it is well known that tobacco related products can cause prenatal maldevelopment, very little is known on how tobacco products affect bone tissue as it develops in the embryo. Identifying which chemicals can induce the greatest harm to the prenatal skeletal system is an improbable task as there are over 7,000 chemicals in tobacco smoke alone. In order to assess what chemicals out of the thousands can cause maldevelopment the Toxicological Priority

Index (ToxPI) program was used to rank osteogenic cytotoxic potential. Assay on various pathways and genes were found by accessing the Environmental Protection Agency's Interactive Chemical Safety for Sustainability (iCCS) dashboard and then integrated into the ToxPI system. In order to assess the ability of ToxPI to predict in vivo maldevelopment based on our parameters, two compounds were tested for their potency to inhibit osteogenic differentiation in vitro. A ToxPI predicted negative control (nicotine) and a known osteogenic inhibitor (cycloamine) were selected as a positive control. Human embryonic stem cells were differentiated into osteoblasts and exposed to various concentrations of each compound. Cell viability was measured via MTT assay in conjunction with a calcium assay to measure osteogenic differentiation yield. In accordance with its predicted ToxPI score of 2.3, cycloamine was cytotoxic in vitro and inhibited differentiation at similar concentrations. In contrast, results revealed nicotine, although not cytotoxic in vitro, to cause differentiation inhibition. Together our data suggests that ToxPI might be useful to identify strongly inhibitory chemicals based on their cytotoxicity, by might also give false negative results for chemicals that cause differentiation inhibition at sub-toxic levels.

Joseph Mansuri**Faculty Mentor: Dr. Jeremy Dodsworth****Department: Biology****Title:** *Cultivation of Hydrogen-Consuming Microbes from Anaerobic, Xyloglucan-Degrading Thermophilic Consortia*

Abstract: Degradation of plant polymers at high temperatures remains poorly understood and, although they may have potential uses in second-generation biofuels, many microbes in thermophilic, hemicellulose-degrading consortia represent novel lineages that have yet to be described. Isolation of hydrogen-consuming microbes, including members of the genera *Archeoglobus* or *Thermodesulfobacterium*, was attempted on laboratory enrichments originally obtained from hot springs in Nevada using xyloglucan as a sole carbon source. Several isolates were obtained by plating the enrichments on solid, anaerobic minimal media with hydrogen gas in the headspace, designed to

isolate hydrogen-consuming members of *Archeoglobus* or *Thermodesulfobacterium* using sulfate, sulfite or thiosulfate as terminal electron acceptors. A member of the genus *Thermodesulfobacterium* was isolated and may represent a novel species, with 98.7% rRNA gene identity to *T. hveragerdense*. Two additional isolates were identified as members of the genera *Dictyoglomus* and *Thermotoga*, and were closely related to describe species that are obligate organotrophs. Because these isolates could not grow in liquid media without complex organic substrates, they likely were utilizing the solidification agent or trace organics in the solid medium. To circumvent this problem, additional isolation attempts were performed in liquid media using the dilution-to-extinction method, where 10⁻³ to 10⁻⁹ dilutions of the inoculate were made into appropriate liquid medium. Dilutions were checked for growth by microscopy; once growth was observed a repeated series of dilutions throughout a time of three weeks was performed. DNA extraction, amplification and sequencing of 16S rRNA genes will be used to determine if pure cultures were obtained.

Nelson Membreno**Faculty Mentor: Dr. Tomasz Owerkowicz****Department: Biology****Title:** *Effects of Eggshell Removal on Embryonic Skeletal Development and Post-Hatching in the American Alligator (*Alligator mississippiensis*)*

Abstract: Embryonic archosaurs (crocodilians and birds) are known to sequester calcium from their heavily mineralized eggshell and use it to mineralize their developing skeleton. In order to test the importance of eggshell calcium to embryonic growth, we studied growth of embryos and hatchlings of the American alligator with and without the calcareous eggshell. The outer eggshell layer was manually removed early in incubation, and embryos (n=6) were sampled at weekly intervals until hatching. The experimental and sham-handled control eggs were incubated at 30°C and 100% relative humidity. Results show that experimental ("shell-less") embryos were significantly smaller in body mass and length than their clutch-sibling controls. Under identical rearing conditions, experimental hatchlings did

not demonstrate catch-up growth despite ad infinitum diet and remained significantly smaller than control hatchlings. Observation of biting behavior revealed that experimental hatchlings had more compliant lower jaws and generated weaker bite forces. Our results suggest that yolk calcium reservoir is sufficient for healthy development, but eggshell calcium is required for normal embryonic growth. We posit that increased calcium absorption during development allows the embryo to hatch at larger size, which ultimately allows greater force development during predation.

Daniel Mesa**Faculty Mentor: Sally McGill****Department: Geological Sciences****Title:** *Assessing Crustal Deformation within a Transect across the San Andreas Fault near Bombay Beach using GPS Data*

Abstract: A model of elastic motion along with Global Positioning System (GPS) was employed in order to establish the slip rate for the San Andreas Fault (SAF), the San Jacinto fault (SJF), along with several other faults on the boundary of the Pacific-North American plate near the southern end of the San Andreas Fault. After testing 120, 959 possible slip rate combinations, the slip rate for the San Andreas Fault was determined to be 10-19 mm/yr, with an optimal slip rate of 15 mm/yr. The San Jacinto Fault-Clark strand was found to be 6-15 mm/yr with a best fit slip rate of 11 mm/yr. The slip rate of the San Jacinto fault-Coyote Creek strand was found to have between 6-11 mm/yr, with a best fit slip rate of 9 mm/yr. Other faults that traverse through the Bombay Beach transect were found to have between 0 and 6 mm/yr., of slip.

Kyle Pena**Faculty Mentor: Dr. Sally McGill****Department: Geology****Title:** *Global Positioning System tracking of slip rate of the Imperial, Elsinore/Laguna Salada, San Jacinto/Weinert, Agua Blanca, and San Miguel Faults near the U.S.-Mexico border*

Abstract: In this study, the slip rates of the Imperial, Elsinore, Agua Blanca, and San Miguel Faults were investigated. This was done by using available GPS site velocities in the Imperial Valley. From my research using GPS site velocities and elastic modeling, I have calculated the following slip rates: Imperial Fault-30 mm/yr; Elsinore (Laguna Salada) Fault-2 mm/yr; Agua Blanca Fault-1 mm/yr; San Miguel Fault-4 mm/yr; Weinert Fault-5 mm/yr; Unnamed Fault-2 mm/yr. Results were found by comparing observed GPS velocities with velocities predicted from an elastic model for various fault slip rates and locking depths for the faults studied. Within the model, slip rates and locking depths were manipulated until a line of best fit was found. In most cases, my slip rates agreed with published studies. The one major discrepancy is for the Imperial fault. From my research, using GPS, I calculated a slip rate of 30 mm/yr, while Thomas and Rockwell (1996) calculated a slip rate of 15-20 mm/yr using an offset channel that was 300-500 years old.

Alexa Reyes

Faculty Mentor: Dr. Monidepa Becerra

Department: Health Science- Environmental Concentration

Title: *Clostridium difficile Incidences among Emergency Department Patients*

Abstract: Background: New emergent strains of *Clostridium difficile* (C.diff) over the past few years has resulted to be a significant health burden in the United States. Much of the literature, however, has highlighted *clostridium difficile* Infections (CDI) among inpatient cases, with limited studies among emergent department (ED) admissions. In this study, we focused on addressing such a gap in the literature. Methods: A multivariable regression analyses was conducted using California's Office of Statewide Health Planning and Development (OSHPD) data software on 6,871,321 emergency department cases. Results: Prevalence of CDI was noted to be 1.87 per 1,000 emergency department hospitalizations. In this study, hospital and patient characteristics such as age, sex, race, insurance, zip code proportion of population in poverty, county group and (MUA) characteristics were assessed. It was observed

that in the age category 5.6% of patients over the age of 65 years or older resulted with CDI. It was also observed that C.diff incidence percentile for women was 2.1% over men and 3.9% of these cases were Medicare patients. Conclusion: In this study it was observed that emergency department CDI cases is typically seen amongst women, seniors over the age of 65 and Medicare patient.

Moises Romero

Faculty Mentor: Dr. Kimberley Cousins

Department: Chemistry

Title: *Computational Analysis of Hydrogen Bonding Organoferroelectric Dimers*

Abstract: Croconic Acid, 3-Hydroxyphenalenone (3-HPLN), 2-phenylmalodialdehyde (PHMDA), cyclobutene-1, 2-dicarboxylic acid (CBDC), and certain bromanilic/chloranilic acid with phenazine/2, 3-di (2-pyridinyl) pyrazine dimers are known hydrogen-bonded organoferroelectrics. This study seeks to build a simple model to predict experimental constants for organoferroelectric hydrogen-bonded systems, based on calculated parameters. Hydrogen-bonded dimers extracted from the crystal structures for materials named above were subject to calculations of interaction energies and vibrational energies, using the Hartree-Fock method and the 6-311G* basis set. Calculated parameters were compared with published experimental data: coercive field, polarization and Curie point, in order to look for correlations between the values. No linear trend was observed, however; there were visible relationships represented by clustering of chemically similar systems in the graphs. Further studies are being done with a focus on vibrational energy. Special parameters including hydrogen bond angle and dipoles are being observed to improve the predictive model.

Kirby Roucher

Faculty Mentor: Dr. Sally McGill

Department: Geology

Title: *Global Positioning System Tracking of Fault Slip Rates within a Transect across the Pacific-North America Plate Boundary, Near Brawley, California*

Abstract: Using benchmarks within the Brawley transect, possible slip rate combinations were determined for seven faults along the North American and Pacific Plate boundary. Three models were tested for best possible slip rate and locking depth combinations, thus calculating the best fit scenario. Of the three models tested, the best fit was graphed and enveloped to show a housing with the acceptable range predictions that concur with observed benchmark velocities. The models that were considered acceptable contained the following slip rates: 8-14 mm/yr, respectively, for the San Jacinto fault. The best fitting model for the Brawley seismic zone had 12 mm/yr (with a shallow locking depth of 1 km) and the Lake Elsinore Fault and the San Miguel Fault having slip rates of 2 mm/yr.

Zahoor Sadiq

Faculty Mentor: Dr. Jeremy Dodsworth

Department: Biology

Title: *Isolation of Pectin Degrading Thermophilic Bacteria*

Abstract: Pectin is a heterosaccharide found in the primary cell walls of many land plants. The breakdown of pectin is important in many industrial applications. Using thermophilic pectinases (pectin-degrading enzymes) can confer many advantages in these applications, but only few of these enzymes are known. To work towards the goal of identifying novel thermophilic pectinases, pectin-degrading enrichments were established at 74 °C using material obtained from a hot spring in northern Nevada. Stable cultures were obtained under both anaerobic and microaerobic conditions, and attempts at isolation on solid medium successfully yielded pure cultures. The anaerobic isolate had a 16S rRNA gene sequence

99.8% identical to that of *Thermotoga petrophila*, which has been previously shown to degrade pectin. The microaerophilic sample yielded an isolate that contained an rRNA gene sequence that was 99.8% identical (1382/1385) to that of *Thermus thermophilus* JL-18, as species that is not known to degrade pectin. The capacity to use pectin as the sole carbon source was confirmed for both strains. Because the anaerobic isolate did not represent the dominant cellular morphotype in the enrichment cultures, isolation by the dilution to extinction method in liquid medium was also performed under anaerobic conditions. This resulted in isolation of a stain that may represent a new species in the genus *Caldicellulosiruptor* (98.9% rRNA gene identity). This strain is being further characterized in comparison to its closest relative, *C. owensense*, to determine if it represents a distinct species.

Nicole Sauls

Faculty Mentor: Dr. Nicole Dabbs

Department: Kinesiology

Title: *Differences in Collegiate and Recreationally Trained Male Soccer Players on Balance and Stability Measures*

Abstract: Balance is an important skill needed for the execution of movements in sports. For soccer players, balance allows the athlete to successfully execute quick directional changes. Purpose: The purpose of this investigation was to determine the differences in collegiate and recreationally trained male soccer players on balance measures. Methods: Thirteen Division III collegiate trained (age 23.22 ± 3.42yrs) and nine recreationally trained male soccer players (age 20.54 ± 1.76yrs) volunteered to participate in one familiarization and one testing session. During familiarization, the participants performed a dynamic warm-up, followed by three balance tests on the Biodex Balance System. The balance tests consisted of Static Balance (SB), Limits of Stability (LOS), and Single Leg Balance (SLB). Participants returned to the laboratory at least 24hrs following familiarization session and balance was assessed with the same three balance tests. The SB, SLB, and LOS test measured degrees from horizontal and the LOS test also measured time to completion. The static

outcome variables measured anterior, posterior, right, and left sway from a center point. One-way analysis of variance (ANOVA) was conducted to analyze differences between the recreational and collegiate soccer players in all SB, LOS, and SLB variables. Results: There were no significant ($p > 0.05$) differences between groups in the LOS, SB, and SLB variables. Conclusion: These results show there is no difference between division three collegiate soccer players and recreationally trained soccer players in balance control in static and dynamic conditions. Practical Application: The lack of difference between the collegiate and recreationally trained soccer players in balance measures may be due to the type of training done at a Division III level. The DIII athlete's balance should improve with the implementation of a strength and conditioning program, which will increase their strength and stability.

Nicolas Schwartz

Faculty Mentor: Dr. Angela Horner

Department: Biology

Title: *Effects of Selection for High Voluntary Running on Nutrient Foramen Dimensions*

Abstract: Genetic composition is the blueprint from which bone is built, affecting over 50% of overall bone mineral content in adult mammals. However, stress from mechanical loading causes micro-fractures in bones, triggering dynamic bone remodeling by shifting the balance of absorption and formation to net formation. This remodeling is limited by supply of blood through the nutrient artery, which supplies 50-70% of total blood volume in long bones. The nutrient artery is limited in size by the nutrient foramen that it penetrates. Because genetic and environmental factors can independently affect the structure of bone, we used mice from lines that have been selectively bred for high levels of voluntary wheel running (High Runner, or HR lines) to determine whether a difference in nutrient foramen size in long bones was present in mice selectively bred for increased voluntary running (11th and 72nd generations). Femoral foramen, cortical thickness of the diaphysis, length, volume, moment of inertia, and polar moment were measured via micro-computed tomography. We use the data to test the effects of

selection (HR vs control), exercise (wheel access vs sedentary), and potential interactions between them (HR vs control with wheel access).

Nathanael Taylor

Faculty Mentor: Dr. Sarah McGill

Department: Geology

Title: *Interpreting GPS data from a transect across the Pacific-North America plate boundary, passing through the San Bernardino Mountains*

Abstract: Through GPS research I have obtained probable slip rates for ten faults within a transect across the Pacific-North America plate boundary passing through the San Bernardino Mountains. These slip rates were estimated by using an Excel Macro to compare the observed deformation profile to what would be predicted from elastic theory for various rates of fault slip in the lower crust. This model yielded best fit slip rates for the faults studied as follows: San Clemente Fault, 3mm/yr; Palos Verdes Fault, 2mm/yr; Newport-Inglewood Fault, 4mm/yr; Elsinore Fault, 3mm/yr; San Jacinto Fault, 10mm/yr; San Andreas Fault, 10mm/yr; Helendale Fault, 0mm/yr; Lenwood Fault, 1mm/yr; Calico, 12mm/yr; and Ludlow Fault, 1mm/yr. There is a large uncertainty in the slip rate of San Andreas Fault (SAF). Although the best fitting model has a SAF rate of 10mm/yr, models with an SAF rate as low as 2mm/yr or as high as 18mm/yr fit the observed profile of site velocities relatively well.

Nathan Tierce

Faculty Mentor: Dr. Kimberley Cousins

Department: Chemistry

Title: *Physisorption of Functionalized Benzene on the Ag (111) Surface*

Abstract: Systems with applications in electronic devices may exhibit properties such as self-assembly, spintronics and molecular switches. Substrates adsorbed to a surface are one type of system that can display these properties. The first step in calculating these properties is determining the binding site preference of the substrates adsorbed to the surface. In order to determine binding site preferences, five benzene

derivatives were placed on the Ag (111) surface at twelve locations. Aniline, phenol, toluene, fluorobenzene and phenyllithium were placed on the top, bridge, Hhcp and Hfcc positions at 0, 30 and 60o rotations. Geometry optimizations and system energies were calculated via density functional theory. Calculations were done using VASP along with the revPBE-D3 functional to ensure dispersion forces were accounted for with a plane wave cutoff of 500eV. The updated coordinates obtained through geometry optimizations were then used for sequential calculations with K-Point grids of 7-7-1 and 13-13-1. Physisorption was observed for all derivatives except phenyllithium which was found to undergo chemisorption. A final binding site preference for each derivative has not been observed yet because results have only been obtained for the 7-7-1 K-Point grid. Future work will involve calculating energies for the 13-13-1 K-Points followed by Bader charges, charge density difference diagrams and density of states calculations for the most stable conformation of each derivative. These final calculations will help determine the electron interactions between the surface and the adsorbates.

Teresa Ubina

Faculty Mentor: N/A

Department: Biology

Title: *Developmental Toxicity Testing of E-Cigarettes Using Drosophila melanogaster Embryonic Stem Cells*

Abstract: E-cigarettes (EC) are relatively new and many of the effects they have on the body are still unknown. Given this, even less is known about the effects they have on embryonic development. Previously identified as a reliable method for teratogen testing, Drosophila melanogaster embryos fully develop and hatch into larvae 24 hours after oviposition which makes them attractive as a fast and reliable method of testing developmental toxicants (Bournias-Vardiabasis, 1983). When primary cultures are taken at the gastrula stage of development, the embryonic stem cells will differentiate into the beginnings of the muscular and neuronal systems in vitro within 24 hours and these differentiated cells called myotubes and neuronal clusters can be counted. In this study, primary cultures of D. melanogaster embryos at the gastrula stage

were exposed to conventional and e-cigarette vapors dissolved into culture media at various concentrations. From conventional cigarettes, mainstream smoke (MS) and side stream smoke (SS) were both tested. The smoke concentrations were measured in Puff Equivalents (PE) which is the amount of smoke from 1 puff that will dissolve into 1 mL of solution. SS smoke, MS smoke and EC vapor were tested at 0.1 PE/mL and 0.01PE/mL. The numbers of neuronal clusters and myotubes were counted 24 hours after exposure and a Student's t-test was performed. If the cell counts of either neuronal clusters or myotubes were reduced enough to be deemed significant by the t-test, the chemical was labeled as a developmental toxicant. MS smoke was toxic at 0.1 PE/ml, SS was toxic at all concentrations, and EC vapor was toxic at 0.1PE/mL.

Maressah Ynfante-Corral

Faculty Mentor: Dr. Kimberley Cousins

Department: Chemistry

Title: *Comparing Methods for Calculating Aromaticity of Oxocarbons with Different Ring Sizes and Charges*

Abstract: There are many computational methods used to determining aromaticity. This project compares four methods used in calculating aromaticity for oxocarbons and their anions: HOMO-LUMO gap, isodesmic reactions, NICS (nucleus independent chemical shift) differences and the HOMA (harmonic oscillator model of aromaticity) method. The calculated predictors were compared to each other to see if they showed consistent trends for oxocarbons differing in ring size and charge. The four cyclic oxocarbons examined were deltic acid, squaric acid, croconic acid and rhodizonic acid, as well as their mono and di-anions. Each molecule was optimized at DFT/RB3LYP 6-311++G** in a vacuum using Spartan 10 because it was the highest bases set for all of the data collected. The results showed that isodesmic reactions and HOMO-LUMO gap didn't work with this range of structures. Two methods, NICS-difference and HOMA, were the methods that showed consistent trends across these varied systems.

Social & Behavioral Sciences



Taylor Alexander

Faculty Mentor: Dr. Monideepa Becerra

Department: Health Science and Human Ecology

Title: *The Public's Concern over Abusive Relationships*

Abstract: This research was done due to the media's overwhelming influence on the public. The increasing amount of stresses on the public, and the lack of healthy ways to release the stress can result in harm to the community. The purpose of this project was to see the pattern of abusive relationships between men and women. Methods: In order to discover those patterns, Google Trend searches were made using the key words abusive girlfriend and abusive boyfriend. Results: After doing the research it showed specific months that had a higher search rate than others. Some months repeated a higher search rate year after year. For example, February, May, June, and September. Conclusion: Concluding findings, searching additional terms could have possibly produced slightly different results. As well as comparing the information to times that certain abusive related media came out to the public. Lastly, to add to the research it would be good to conduct an experiment that supports the relationship between media and abusive relationships.

Erin Alderson

Faculty Mentor: Dr. Cynthia Crawford

Department: MA in Psychology- General Experimental

Title: *Effects of Repeated Paroxetine on Acoustic Startle and Pre-pulse Inhibition in Adolescent Male and Female Rats*

Abstract: Depression is a common problem during adolescence, but the most commonly prescribed class of antidepressants, the selective serotonin reuptake inhibitors (SSRIs), often lack efficacy and can induce suicidal ideation in adolescents. It is possible that SSRIs, such as paroxetine (PAX), may have anxiogenic (anxiety producing) effects on adolescents. Thus, we assessed the effects of repeated PAX treatment on acoustic startle response (ASR), which is a measure of anxiety. Male and female Sprague-Dawley rats (N=192) were injected with PAX (1.25, 2.5, 5 or 10 mg/kg, IP) or vehicle for 10 consecutive days starting on postnatal day 35, then tested on ASR for 5 days; 1, 7, or 28 days post treatment. PAX had a sex-dependent effect on the body weights of adolescent rats, with male rats losing weight at 10 mg/kg, and females gaining weight at 1.25 mg/kg. The magnitude of the ASR was greater for males on all test days. At each age tested, exposure to PAX (10 mg/kg) increased habituation of the ASR, but only in male rats. Interestingly, there was a marginal interaction between sex and test day when the PPI scores were analyzed. Specifically, male rats showed increased PPI relative to females, with the greatest sex difference occurring 28 days after the last drug treatment. Overall, these data

show that adolescent female rats exhibit less anxiety-like behavior than males after repeated paroxetine treatment, and these paroxetine-induced effects are still apparent four weeks after the last drug treatment.

Ashley Araiza

Faculty Mentor: Dr. Joseph Wellman

Department: MA in Psychology- General Experimental

Title: *How the Cause of Obesity is Framed Impacts Wellbeing among Overweight Individuals*

Abstract: Approximately two thirds of adults in the United States are overweight or obese (Ogden, Carroll, Kit, & Flegal, 2012). Increased prevalence of obesity has led to discussion and framing of the issue as a threat to the health care system and as a societal burden to others (Tomiya, 2014). Framing the problem in this manner has resulted in greater stigmatization of the overweight, which might contribute to poor health factors that underlie some forms of obesity (Tomiya et al., 2014). In the present study, we examined how framing the cause of obesity as biological, personal, or unknown might impact perceived weight stigma, self-esteem, and eating behavior. We predicted that participants who read an article framing obesity as a result of personal responsibility would report greater perceived weight stigma, lower self-esteem, and more maladaptive eating behaviors than participants who read an article suggesting that obesity is the result of biological factors or of some unknown factor. Undergraduate college students who consider themselves to be overweight were recruited to participate in an online study that involved reading an article framing obesity as a result of (1) biological factors, (2) personal responsibility, or (3) some unknown factor (control group). Participants then completed the Perceived Stigma of the Overweight Scale (McCoy, Wellman, Cosley, Saslow, & Epel, 2015), Rosenberg Self-Esteem Scale (Rosenberg, 1965), and the Dutch Eating Behavior Questionnaire (van Strien, Frijters, Bergers, & Defares, 1986). Following completion of data collection and detailed statistical analyses, results will be discussed from a resource depletion perspective.

Lorraine Armenta

Faculty Mentor: Dr. Erica Lizano

Department: Social Work

Title: *Families of Sex Trafficking Victims: Perspectives on Needs and Services*

Abstract: Human trafficking has gained attention in recent years and many people are now aware that it exists. However very few people are aware of the impact that sex trafficking has on the family. This mixed-methods project explores family functioning and the perception of service needs amongst family members of victims already receiving specialized services. The study also helps examine if Families Against Sex Trafficking is providing services families feel are needed and helpful. The themes which emerged from the qualitative data and overall results of the research will be presented.

Don Araujo

Faculty Mentor: Dr. Kelly Campbell

Department: Psychology

Title: *Gender Roles: An Examination of Intra- and Interpersonal Outcomes Across Cultural Groups*

Abstract: The purpose of the current study was to examine the impact of gender roles on intra- and interpersonal outcomes across cultural groups. We were especially interested in how androgyny functions across groups because of its demonstrated positive effects among Euro/white individuals. Following from previous research, we expect that: 1) For men, instrumentality will be positively associated with loneliness (unless they are in a relationship) and self-esteem, and negatively associated relationship satisfaction, and supportive communication; 2) For women, expressiveness will be negatively associated with loneliness and self-esteem and positively associated with relationship satisfaction, and supportive communication; 3) Androgyny will be negatively associated with loneliness and positively associated with self-esteem, relationship satisfaction, and supportive communication. We will examine ethnic differences to identify whether the positive effects of androgyny hold across cultural groups. Participants (N = 280) were recruited using a university participant management system, social media sites (e.g., Facebook),

and Craigslist.org (volunteer sections). The survey was hosted on Qualtrics.com and took approximately 30 minutes to complete. Our hypotheses were largely supported. Androgyny demonstrated greater positive effects for women than men. Androgyny did not demonstrate positive intra or interpersonal effects for Latino participants. We believe this finding is due to the traditional gender role norms within the Latin culture. Men and women who violate their expected gender role norms could potentially experience negative judgments, which could impact their intra- and interpersonal outcomes.

April Baca

Faculty Mentor: Dr. Jane Chin Davidson

Department: Art

Title: *Subject Positions in Art*

Abstract: The poster included within this symposium will highlight the research that was conducted summer 2015 with Professor Jane Chin Davidson with the definitive goal of publishing up to nine, Art History Senior Seminar conference papers for a special online journal issue of Subject Positions in Art. Through a collaborative and intensive editing process, students involved in this project worked on refining and preparing readings selected for publication on CSUSB's Scholar Works. The basis of the research conducted was intended to not only publish selected texts through a collective editorial team process, but to foster the editorial aspect of art historical research. The process in place for preparing these materials included, but was not limited to, reviewing texts submitted for publication, editing/copy-editing each piece, and preparing an editor's introduction to the theory and theme(s) relevant to the conference. The editor's introduction outlines a discussion of the conference and of the theory on subject positions while also offering a summation of each of the papers presented. The special journal issue for the Subject Positions in Art is currently slated for publication in March, 2016. The special journal issue will be available to access on the new Art History page for CSUSB.

Jennifer Bacon

Faculty Mentor: Dr. Eugene Wong

Department: Child Development

Title: *Student Perception of Instructor Qualities: What Makes for Effective Professors?*

Abstract: Student Perceptions of Instructor Qualities: What Makes for Effective Professors? Although numerous individuals (e.g. faculty, administrators, and students) provide evaluative feedback regarding university instructors, past research has shown that student perceptions predict their learning outcomes most accurately. Thus, assessing those perceptions is an important component of understanding the qualities that define highly effective instructors when attempting to impact student success. Previous work suggests that the most effective instructors possess characteristics that fall into the following categories: content knowledge, personal qualities, and professional/instructional qualities. The purpose of the current project is to pilot a measure of the determinants of instructional quality and to examine similarities and differences across class standing with respect to the most critical qualities identified by students. Three hundred seventeen undergraduates from a mid-size southern California public university completed a scale in which the importance of 75 instructor characteristics was ranked on a 5-point scale ("not important" to "critical"). Demographic data (e.g., class standing, grade point average, and major) were also gathered. The scale was administered to participants during class meeting times. Specific efforts were made to sample from large general education courses on campus to increase the likelihood of a representative sample. Preliminary analyses indicate that there are similarities and differences across class standing (i.e., freshmen, sophomores, juniors, and seniors) that are interesting and informative. Moreover, student perceptions of the most important instructor qualities demonstrate some consistency with previous work that highlighted the significance of content knowledge, as well as, personal and instructional characteristics.

Andrea Barrera

Faculty Mentor: Dr. Christina Hassija

Department: General Experimental Psychology

Title: *The Relationship between Shame, PTSD Symptoms and Attributional Style among Survivors of Sexual Assault*

Abstract: College campuses are thought to be safe heavens where students can attain an education. However, there are many crimes that can still be perpetrated on campus, and sexual assault is among those crimes. The National Intimate Partner and Sexual Violence Survey indicates that 1 in 5 women and 1 in 71 men have experienced rape at some time in their lives (Black et al., 2011). Among college populations rates are higher, with 25% of women being likely to experience victimization during their undergraduate years (Fisher, Cullen, & Turner, 2000). Upon experiencing a potentially unexpected/unpleasant event, individuals often create causal attributions in an effort to make meaning (Joseph, Yule, & Williams, 1993). Maladaptive attributions can complicate recovery and lead to the development of a psychological disorder. For example, self-blaming attributions have been associated with poorer outcomes among survivors of sexual assault (Campbell, Dworkin, & Cabral, 2009). Additionally, increased PTSD symptoms have been associated with stable and global attributions among individuals who have been exposed to traumatic events (Gray & Lombardo, 2003). These attributions may enhance survivors' experiences of shame, or lead to maladaptive self-schemas (Vidal & Petrak, 2007). The present study sought to elucidate the effects of shame on PTSD symptom severity and quality of attributions in survivors of sexual assault. We hypothesized that pessimistic attributions would be positively associated with PTSD symptom severity, PTSD symptom severity and pessimistic attributions would be positively correlated with perceived shame, and that shame would mediate the relationship between PTSD and pessimistic attributions.

Martin Barriga

Faculty Mentor: Dr. Cari Goetz

Department: Psychology

Title: *Maternal Aggression in Defense of Children with Disabilities*

Abstract: Having a child with a disability requires a high level of investment. For this reason, mothers tend to be overprotective and perceive them as being vulnerable. The present study investigated defensive aggression in mothers on behalf of their children with disabilities. It was hypothesized that mothers would engage in more defensive verbal aggression on behalf of children with disabilities compared to mothers of children who do not have a disability. Participants consisted of 100 adult mothers who answered questions about their child's disability diagnoses, health, and vulnerability. Participants read scenarios that involved their child being threatened in some way and answered questions about how likely they would be to respond aggressively. We conducted statistical analyses to determine if disability diagnosis, health, or perceived vulnerability predicted level of defensive aggression in mothers. Results of this study provide us with a better understanding of maternal aggression in specific contexts.

Jazmine Bennett

Faculty Mentor: Dr. Mark Agars.

Department: Industrial-Organizational Psychology

Title: *The Mediating Role of General Organizational Means-Efficacy on Organizational Context and Career Outcomes*

Abstract: General organizational means-eficacy was evaluated as a mediator on the relationship between organizational contextual factors and employee career perceptions. Leadership support and training and development were found to be strong predictors of general organizational means-eficacy, while general organizational means-eficacy was strongly associated with job satisfaction, organizational commitment, turnover intentions, and advancement perceptions. This study highlights the importance of leadership support and training and development in creating positive

employee perceptions of their resources and career outcomes.

David Buitron, Erin Alderson, and Anthony Sierra

Faculty Mentor: Dr. Hideya Aoshino

Department: Psychology

Title: *Mindfulness Meditation Single Session Study*

Abstract: The purpose of the Mindfulness Meditation Single Session study revolves around a clearer, empirically based approach to understanding the cognitive faculties underlining meditation and thus forming a foundation that will allow us to extend the short-term effects of the depletion/ restorative conditions onto a training program that may preserve the cognitive effects expected from mindfulness meditation- which is the breathing oriented practice of non- judgmental acceptance of the present moment.

Nina Francezca Calub

Faculty Mentor: Dr. Kelly Campbell

Department: Psychology and Human Development

Title: *Ethnic Identity and Interracial Marital Dynamics*

Abstract: Interracial marriage is defined as a union between people from different racial backgrounds. The current study examined the effects of ethnic identity on the interracial marital dynamics of satisfaction and conflict. We hypothesized that participants with a strong ethnic identity would report high satisfaction and low marital conflict unless they had experienced racial discrimination from their spouse. For those who reported high levels of spousal discrimination, strong ethnic affiliation was expected to associate negatively with relationship satisfaction and positively with conflict. Participants were recruited using a university research management system, social media sites (e.g., Facebook), and Craigslist.org. Participants first completed an online survey and then volunteered their contact information if they were willing to participate in a follow-up interview. Although the current talk will present quantitative findings, the focus is primarily on the interview data. The interview responses were analyzed using the constant comparative method. We examined group differences in

marital quality for those had experienced discrimination from their spouse compared to those who had not experienced discrimination. Preliminary analyses demonstrated support for our hypotheses. Although we found that discrimination experienced within the relationship was detrimental for marital quality, discrimination experienced outside the relationship did not affect marital satisfaction or conflict and in some cases enhanced marital quality. One study limitation is that we assessed individuals rather than both couple members. Future research should include both partners and examine whether couples experience different outcomes based on their respective cultures

Micah Carlson

Faculty Mentor: Dr. Erica Lizano

Department: Social Work

Title: *Finding commonalities among addictive behaviors and other forms of self-harm*

Abstract: As Social Workers, we can play a role helping others in directly preventing and managing some of the U.S.'s major public health issues (e.g. diabetes, substance abuse, alcoholism, tobacco abuse, eating disorders, sex disorders, as well as emotional and mental disorders). Neuroscience research has changed the ways mental health issues are understood and addressed so that addictions are now looked at as a brain disease, and thus, legitimized as a medical condition. There are few studies that focus on the 'biopsychosocial' factors that both complement and interact with this neurogenetic understandings (Buchman, Skinner, and Illes, 2010). This research seeks to gather and generate data to begin a long-term comparative study that is based on the co-presence of correlations between substance abuse and self-harming behaviors in order to find common associations of harm between substance abusers and those with co-occurring disorders. I will use the data from this research to begin a later analysis of bio-psycho-social causations between substance abusers, those with other types of self-inflicting harmful disorders (e.g. those with diabetes from overeating, alcoholism, tobacco use, eating disorders, sex disorders, codependency, etc.).

Daniel Caro

Faculty Mentor: Dr. Janet Kottke

Department: Psychology

Title: *The Motivation of Employees in Non-Appealing Jobs*

Abstract: The purpose of this study is to explore how an individual's motivation could be affected by working a job with limited enrichment. Individuals will be given a job scenario that varies in level of physical work and then asked to answer questions regarding how he or she would feel working that job. Participants will be given one of three scenarios: carton loader (most physical), inductor (moderately physical), and equipment auditor (limited physical) with all three jobs predicted to have roughly comparable cognitive demands. It is hypothesized that individuals who are assigned the "inductor" scenario will be more motivated than the ones assigned the "carton loader" scenario, but less motivated than the ones assigned the "equipment auditor" scenario. I will conduct ANOVA by job description using as dependent variables the Motivation at Work Scale scores and answers to questions developed by the researcher to assess interest in the job. In addition, an ANCOVA, using the Work Preference Inventory as a covariate, will be conducted to control for individual needs to be fulfilled by a job. This study is important because it will allow us to see how much physical labor influences motivation in particular and more generally, how individual preferences for fulfilling work affect that motivation.

Heather Carrasco

Faculty Mentor: Unknown

Department: Psychology & Human Development

Title: *The Influence of Social Media Viewing on Sexual Assault Beliefs*

Abstract: The United States is experiencing an epidemic of sexual assault on college campuses, with 25% of college women reporting experiencing rape or attempted rape. Prior research has highlighted the role of rape myth acceptance and bystander beliefs in the prevention and perpetration of sexual assault. Additionally, prior research has revealed that consumption of certain forms of media (e.g., sports, or

violent pornography) has been associated with sexual assault-related beliefs among college students. To date, however, no studies have examined the role of social media use on sexual assault-related beliefs. The goal of the present study was to examine the influence of social media consumption and adherence to gender roles on sexual assault-related beliefs. Participants were undergraduate psychology students who participated in the present study in exchange for course credit. We hypothesized that social media consumption would be positively associated with rape myth acceptance and adherence to traditional gender roles. We also expected to find a negative association between social media consumption and bystander self-efficacy. Lastly, we expect that the relationships between social media use and rape myth acceptance and bystander self-efficacy will be mediated by gender roles after controlling for social desirability. Data collection is ongoing; however, preliminary analyses reveal positive associations between social media consumption, levels of rape myth acceptance, and greater adherence to more traditional general roles. Bystander self-efficacy was negatively associated with rape myth acceptance, but not social media use or gender roles. Findings from the present study may have meaningful implications for sexual assault prevention programming.

Tristen Cooper

Faculty Mentor: Dr. Nera Marteache

Department: National Security Studies

Title: *The Hub Effect: Airline Hubs as Facilitators of Theft from Passengers' Luggage?*

Abstract: Pilferage from air passengers' luggage by airport employees is often reported in the news and causes concern among travelers. It is an indicator of vulnerability in the aviation network: If offenders have access to passengers' luggage to steal items from them, that access can also be used to transport drugs, stolen goods, explosives, etc. Therefore, it is very important to know where those thefts happen, and why they happen most at certain airports. Previous research findings show that smaller airports seem to be riskier. However, these results only take into account the origin and

final destination airports of each trip, disregarding the layovers in between connecting flights, or how airports are connected to one another. This study will focus on the role of “hubs” (a transfer point used by the airlines to facilitate transport to/from various smaller destinations) and airport interconnectivity as facilitators of crime. Social Network Analysis will be used to modulate theft rates depending on the relative importance of each airport in the commercial aviation network of the U.S.

Lindsey Chesus

Faculty Mentor: Dr. Manijeh Badiie

Department: Psychology

Title: *Yes Means Yes Approach To Sexual Assault Prevention: A Qualitative Exploration*

Abstract: One in five college women are sexually assaulted (Washington Post-Kaiser Foundation, 2015). Prevention programs address the growing phenomenon of sexual assault on college campuses; however, many interventions are problematic and can blame the victim (e.g., Gidycz et al., 2001; Bradley et al., 2009). In most approaches, the issue of consent is not taken into account. Sexual assault can be often defined as sex with the absence of consent (nonconsensual sexual activity) (Jozkowski & Peterson, 2013). The Yes Means Yes (YMY) approach to sexual assault prevention recently legislated in California has defined consent for sexual activities as an explicit yes, or “affirmative consent” rather than an absence of “no”, which has been traditionally viewed as the No Means No (NMN) approach (SB-967 Student Safety: Sexual Assault, 2014). Given both its newness and legal applications, the YMY sexual assault prevention approach warrants research into its effectiveness. The purpose of the current study is to qualitatively explore reactions to these two consent interventions. Participants were exposed to a 2 hour intervention of either YMY or NMN and subsequently asked to complete action plans. An ethnically diverse sample was recruited from a Southern California university (N = 56). Analysis procedures included open coding on the questionnaires and finding emergent patterns among participants’ responses (Given, 2008). Preliminary results demonstrated a variety of reactions

to each intervention. Implications include improvement of consent discussions in sexual assault prevention. A future research direction is further quantitative study to see if the findings generalize.

Janhavi Dhargalkar

Faculty Mentor: Dr. Cynthia Crawford

Department: Psychology

Title: *Effects of Repeated SSRI Treatment on BDNF and TrkB Receptors in Adolescent Rats*

Abstract: The SSRI antidepressant fluoxetine is one of the few drugs that is both effective at treating depression in adolescent humans and does not markedly increase suicidal ideation. In contrast, the SSRI paroxetine has limited efficacy and is more at risk for inducing suicidal behavior. Thus, the goal of the present project is to further explore the differences between paroxetine and fluoxetine on the BDNF system in male and female adolescent rats. We will measure the levels of BDNF and the TrkB receptor after 24 h or 14 days after repeated (10 day) or chronic (30 day) exposure to paroxetine (2.5 or 10 g/kg), fluoxetine (10 mg/kg), and vehicle. Twenty-four hours or 14 days after the last drug injection, rats will be rapidly decapitated and their prefrontal cortex and hippocampus is removed. These tissue samples will be used to quantify BDNF, TrkB, and serotonin levels. We expect the BDNF and TrkB levels to be lower in rats treated with paroxetine but not fluoxetine. We also expect the serotonin utilization (ratio of serotonin to the major serotonin metabolite, 5HIAA) to be higher in fluoxetine than in paroxetine. Our findings would confirm the neurobiological basis of the differential action of SSRIs on the adolescent brain and the relevant implication in suicidal ideation and behaviors.

Natasha Dixon

Faculty Mentor: Unknown

Department: Psychology/Human Development

Title: *Fearing fat: Examining weight stigma's relationship to eating behavior*

Abstract: Fear and stigmatization are often used as motivators for individuals to lose weight or eat healthfully. However, this strategy has been shown to be disadvantageous and can lead individuals to gain weight, can reduce behavioral restraint, and can often exert a negative influence on eating. In the present study, we examined the relationship between weight-based stigmatization, fear of fat (FoF), and eating behavior in a diverse undergraduate sample (N=91, 63.3% Latina/o). We tested whether FoF mediated the relationship between weight stigma and self-reported eating behavior. Participants engaged in a laboratory study that involved completing measures assessing perceptions of weight stigma, FoF, eating behavior, and physical health. Results showed that perceptions of weight stigma were associated with increased binge eating ($b=.19, p<.01$), restrained eating ($b=.25, p<.01$), and emotional eating ($b=.26, p<.01$), but not with externalized eating ($b=.05, p=.99$). Moreover, FoF mediated the relationships between both weight stigma and binge eating ($b=.06$ CI: .02 to .12; Model: $F(1,87)=26.70, p<.01, R^2=.38$) and weight stigma and restrained eating ($b=.15$ CI: .05 to .25; Model: $F(1,87)=24.12, p<.01, R^2=.37$). Results suggest that perceptions of weight stigma exert influence on maladaptive eating behaviors through FoF. Previous research has found that weight stigma, fear of fat, and rigid restraint eating contribute to weight gain. The current research builds on this by identifying one mechanism through which this may occur. Many weight loss interventions and anti-obesity campaigns use stigmatizing language to motivate weight loss and increase healthy behaviors, but our findings suggest that such a strategy might be counterproductive.

Luca Falcone

Faculty Mentor: Dr. Kelly Campbell

Department: Psychology

Title: *Does Love Impact Athletic Performance?*

Abstract: The present study examined the impact of love on athletic performance including whether differences existed based on love-type (passionate vs. companionate). Participants were recruited from the

athletic department at a western U.S. university. The athletes completed four tests on two separate days within the same week period: A one-mile run on the treadmill, the Wingate anaerobic test, a timed core stability test, and stretch-and-reach flexibility. On a randomly selected day, they participated in a 2-minute telephone call with their significant other in which they discussed a recent, positive experience that was shared together. On this same day, they also completed an online survey that assessed their demographic and relationship characteristics, cognitive capabilities, motivation and values, competitiveness, and sport (e.g., individual versus team). Overall, the athletes performed better on days for which they were prompted to think about “love.” There were modest differences based on love-type with those in companionate love performing worse on love-prompt days than those in primarily passionate relationships. In terms of limitations, there are a number of intervening variables that may have influenced our study findings. Although athletes were provided with instructions about their eating and drinking prior to testing, other factors such as lack of sleep or testing before or after a midterm exam could have affected performance. Nevertheless, our findings provide valuable information regarding the beneficial effects of love on athletic performance, which contradicts the commonly held notion that passionate love or sex adversely impacts performance.

Francisco Flores Ramirez

Faculty Mentor: Dr. Sergio Iniguez

Department: Psychology

Title: *Altered Sensitivity to the Rewarding Properties of Cocaine in Adult Female c57bl/6 Mice Exposed to Fluoxetine during Adolescence*

Abstract: Accumulating preclinical evidence indicates that early-life exposure to psychotropic medications results in long-lasting altered behavioral responses to drugs of abuse – suggesting a risk of enhanced drug liability, later in life. However, to date, these preclinical experimental approaches have been conducted primarily using male subjects. This is surprising given that females, when compared to males, are more

likely to be diagnosed with mood-related disorders, and thus be prescribed with psychotropic drugs, such as antidepressants. Therefore, to examine whether long-lasting alterations to the rewarding properties of drugs of abuse are exhibited as a result of juvenile antidepressant exposure, we exposed adolescent female mice to the selective serotonin reuptake inhibitor (SSRI) fluoxetine (FLX, Prozac). We selected FLX given that it is the only SSRI approved by the US Food and Drug Administration for the treatment of pediatric depression. Specifically, female C57BL/6 mice were treated with FLX (20 mg/kg) during adolescence (postnatal days [PD] 35-49) and were later assessed in adulthood (PD 70+) on behavioral responsiveness to cocaine (0, 2.5, 5, and 7.5 mg/kg) place conditioning (CPP). Our results show that adult female mice pretreated with FLX during adolescence displayed a decreased preference for environments previously paired with moderately low doses of cocaine, when compared to saline pretreated controls. Collectively, our data suggest that adolescent exposure to the antidepressant FLX causes behavioral adaptations that endure into adulthood, and that are indicative of a decreased sensitivity to the rewarding properties of cocaine.

Tanisha Flowers

Faculty Mentor: Dr. Kelly Campbell

Department: Psychology

Title: Does Music Preference Associate with Risky Behavior?

Abstract: In this study, we examined the associations between musical preference and individual and relational characteristics. Participants completed an online survey. Our sample included 2014 ethnically diverse individuals from regions across the U.S. We used previously established music groupings (i.e., Reflective & Complex, Intense & Rebellious, Upbeat & Conventional, Energetic & Rhythmic) to examine whether music choice was associated with demographic characteristics, personality traits, attachment style, motivation, values, commitment, and infidelity. Several individual and relational traits were associated with music choice including that older participants had preference for Reflective and Complex music, and women were more likely than men to prefer Energetic and Rhythmic music.

Our findings add to the growing body of literature on music preferences as an indicator of important lifestyle choices. All participants (n=2,319) completed an online survey. Participants resided in the United States and were recruited through professional websites (e.g., Craigslist.org), and CSU San Bernardino student participant pools. SPSS data analyzer.

Kirk Fortini

Faculty Mentor: Dr. Cari Goetz

Department: General Experimental Psychology.

Title: Dark Triad and Committed Relationships: How Perceived Mate-Value Discrepancy Decreases Relationship Satisfaction

Abstract: When studying relationship functioning and psychology, researchers are best served by collecting data from both members of an established couple rather than from individuals. Individual differences, including personality, influence an individual's attractiveness and mating strategies. One dimension on which people vary that influences mating and relationships is the Dark Triad. Partners with the Dark Triad personality traits have lower long-term mate value and experience lower relationship satisfaction in committed relationships. While they are of lower long-term mate value, Dark Triad partners have a grandiose sense of worth that may lead them to believe that the reverse is true. We hypothesize that Dark Triad traits will be negatively associated with relationship satisfaction; also that Dark Triad traits will be positively associated with a partner-self mate-value discrepancy (MVD-PS). We also hypothesize that the MVD-PS will mediate the association between Dark Triad traits and relationship satisfaction, depending on the value of the partner-potential partner mate-value discrepancy (MVD-PP). Participants will complete an online surveying assessing their mate preferences, their own mate value, and their partner's mate value. We conduct multivariate analyses to provide estimates of preference fulfillment and mate value discrepancies, for comparison with responses to Dark Triad and relationship satisfaction measures. The current study will supply evidence of input for relationship satisfaction in Dark Triad partners, and help to explain their short-term mating suitedness.

Scott Foster

Faculty Mentor: Dr. Laura Kamptner

Department: Psychology

Title: Ethnic Variations in Sibling Relationship

Abstract: Research studies have examined the impact of the sibling relationship on a person's development, and have identified some of the factors that influence the sibling relationship including parenting style, age of the siblings, gender of siblings, and some aspects of family cultural values. However, studies have not examined, in depth, how ethnicity impacts the sibling relationship. The purpose of this study is to examine the impact of ethnicity on the sibling relationship. It is expected that sibling relationships in ethnic groups with more collectivist cultural values (i.e., Asian American, Latino American, African American, Middle Eastern) are expected to be warmer, more supportive, and show less conflict and rivalry than sibling relationships in ethnic groups with more individualistic cultural values (i.e., Caucasian American).

Israel Garcia

Faculty Mentor: Dr. Sergio Iniguez

Department: Psychology

Title: Ketamine Exposure during Adolescence Increases Sensitivity to Cocaine in Adulthood

Abstract: Pediatric depression was not well recognized until relatively recent. Today, however, major depressive disorder (MDD) is commonly diagnosed in children and adolescents, and when left untreated, may result in negative consequences that extend into adulthood. It is estimated that children and adolescents who suffer from MDD are likely to develop conduct and anxiety disorders, and that up to 25% eventually develop substance abuse disorder. Consequently, this has resulted in a disproportionate increase in the prevalence of antidepressants prescribed to populations below 20 years of age. Recently, the non-competitive N-methyl-D-aspartate (NMDA) receptor antagonist, ketamine, has been shown to alleviate symptoms of MDD in individuals that suffer from treatment-resistant

depression. However, little is known about the potential long-term consequences of exposure to ketamine during early development. This is particularly important to examine, given ketamine's abuse potential. To address this issue at the preclinical level, we examined whether ketamine exposure during adolescence results in long-lasting changes in sensitivity to the rewarding effects of cocaine. Specifically, male c57BL/6 mice were exposed to ketamine (0 or 20 mg/kg) during adolescence (postnatal days [PD] 35-49) and were later assessed in adulthood (PD 70+) on behavioral responsiveness to cocaine (0, 5, or 10 mg/kg) place conditioning (CPP). Here we show that adult mice pre-treated with ketamine during adolescence displayed enhanced preference for environments previously paired with moderately low doses of cocaine, when compared to saline pre-treated controls. Together, our findings suggest that exposure to ketamine during adolescence increases drug liability, later in life.

Mirella Hernandez

Faculty Mentor: Dr. Sergio Iniguez

Department: Biological Psychology

Title: Ketamine Exposure during Adolescence Increases Sensitivity To Reward-related Stimuli in Adulthood

Abstract: Pediatric depression was not well recognized until relatively recent. Today, however, major depressive disorder (MDD) is commonly diagnosed in children and adolescents, and when left untreated, may result in negative consequences that extend into adulthood. It is estimated that children and adolescents who suffer from MDD are likely to develop conduct and anxiety disorders, and that up to 25% eventually develop substance abuse disorder. Consequently, this has resulted in a disproportionate increase in the prevalence of antidepressants prescribed to populations below 20 years of age. Recently, the non-competitive N-methyl-D-aspartate (NMDA) receptor antagonist, ketamine, has been shown to alleviate symptoms of MDD in individuals that suffer from treatment-resistant depression. However, little is known about the potential long-term consequences of exposure to ketamine during early development. This is particularly important to examine, given ketamine's abuse potential. To

address this issue at the preclinical level, we examined whether ketamine exposure during adolescence results in long-lasting changes in sensitivity to the rewarding effects of sucrose (i.e., natural reward), as well as cocaine (i.e., drug reward). Specifically, male c57BL/6 mice were exposed to ketamine (0 or 20 mg/kg) during adolescence (postnatal days [PD] 35-49) and were later assessed in adulthood (PD 70+) on behavioral responsivity to a sucrose solution (1%), or cocaine (0, 2.5, 5, 7.5, 10, or 20 mg/kg) place conditioning (CPP). Here we show that adult mice pretreated with ketamine during adolescence displayed enhanced preference for a sucrose solution, as well as environments previously paired with moderately low doses of cocaine, when compared to saline pre-treated controls. Together, our findings suggest that exposure to ketamine during adolescence increases sensitivity to both natural and drug-rewards, later in life.

Gino Howard & Stephanie Ingalls

Faculty Mentor: Dr. Mark Agars

Department: MA in Psychology- Industrial/Organizational

Title: *The Effects of Employment Status on Perceptions of Romantic Relationships in South Africa*

Abstract: The purpose of our survey research aims to investigate employment status as a main effect on infidelity. Specifically, among various South African ethnic groups. We expect that there will be a correlation between employment status and perceptions of infidelity such that participants who are employed will view infidelity more favorably than participants who are unemployed. Data collection will take place in South Africa during the summer of 2016.

Stephanie Ingalls

Department: Psychology – Industrial/Organizational

Faculty Mentor: Dr. Mark Agars

Title: *Effects of Cognitive Awareness Training on Gender Discrimination*

Abstract: The persistence of discrimination may be the result of ineffective training. The purpose of our

study is to implement a cognitive awareness training intervention for the purpose of reducing discrimination under a condition cognitive load, thereby reducing the impact of prejudicial beliefs. Specifically, with the intention of mitigating discrimination among the female gender in regards to personnel selection. We hypothesize that the training intervention will reduce discriminatory behaviors. The main effects of levels of prejudice, training condition, and the interactions of these effects are the aims of our experiment. We hypothesized a main effect of high levels of prejudice, as well as the lack of training. Additionally, that there would be a unique interaction between training and high prejudice. We hypothesize (h1) that we will find a main effect for the level of prejudice, such that participants high in prejudice will be more discriminatory than participants low in prejudice. We hypothesize (h2) that we will find an additional main effect for the training intervention in that untrained participants will be more discriminatory than the trained participants. We expect that the training intervention will be more effective in reducing discrimination on (h3) high prejudice participants.

Christina Jap

Faculty Mentor: Dr. Renwu Zhang

Department: Chemistry

Title: *Modification of Croconic Acid Structure*

Abstract: Croconic acid is an organic molecule that possesses large electric ferroelectricity of 20 uC/cm² at room temperature due to the intermolecular H-bonds, as shown in Figure 1. The purpose of this research is to synthesize a derivative of croconic acid and search for the effect of functional groups on the H-bond and eventually on the ferroelectricity, as shown in Figure 2. In this project, the derivative was synthesized via the conventional oximation organic synthesis route. The synthesis reaction is conducted at pH 3 and pH 4, which includes heating of a mixture of both croconic acid and hydroxylamine. After the reaction is completed, the mixture solution is analyzed by using ¹³C Nuclear Magnetic Resonance (NMR) spectroscopy to predict the structure of the molecule. Interpretation of the mixture solution using NMR spectra are still ongoing.

Silvana Johnston and Nina Calub

Faculty Mentor: Dr. Kelly Campbell

Department: Psychology

Title: *Parent-Adolescent Conflicts among First-Generation College Students*

Abstract: Family Conflict Among First-Generation College Students: Does Culture Matter? / The goal of this study was to examine the degrees and sources of conflict between primary caregivers and first generation college students across ethnic groups. First-generation Latino students have reported greater parent-child conflicts than students from other ethnic backgrounds (i.e., African, Asian, and Euro/White Americans) whereas Asian American students have reported the lowest level of family conflict compared to other groups. Our study was rooted in the concept of familism, which is measured along three continuums; Structural, behavioral and attitudinal (Steidel & Contreras, 2003). We tested four specific hypotheses: 1) Academic motivation will be positively associated with family conflict among first-generation, Latino college students; 2) Academic motivation will be negatively associated with family conflict among Euro/white college students; 3) Asian American students will report the lowest levels of parent-child conflicts compared to other ethnic groups; 4) Asian American students with low GPAs will report high family conflict. We collected data from college students (N = 280) using an online survey that contained the Familism Scale (Steidel & Contreras, 2003), the Network of Relationships Inventory (Furman & Buhrmester, 2009), the Inventory of School Motivation (Xu & Barnes, 2011), and the Parental Involvement Mechanism Measurement (Liu, Black, Algina, Cavanaugh, & Dawson, 2010). Our hypotheses were supported except that hypothesis one demonstrated a weak association. We discuss our findings according to principles of familism, individualism, and collectivism and mention that future research may wish to examine the extent to which participants feel differentially tied to their ethnic (minority) group versus the dominant U.S. culture. We also suggest that future research examine the extent to which financial or work obligations

interfere with students' academic motivation among first-generation students, including whether parents have encouraged their children to work. In terms of limitations, our study included a majority female sample (70%). We recommend that future research examine this topic with more men because cultural expectations tend to differ for men and women, particularly in traditionally patriarchal cultures. Therefore, women may experience more family conflict than men when pursuing academic or career goals.

Silvana Johnston

Faculty Mentor: Dr. Christine Weinkauff

Department: Psychology

Title: *Emerging Adulthood and Resilience Study*

Abstract: Decades of research support the positive influence of approach motivation (Lochbaum et al., 2013), exercise intention (Hagger et al., 2002), self-esteem and mental toughness (Gerber et al., 2012), and certain personality characteristics (Rhodes & Pfaeffli, 2012) on an individual's tendency to persist with exercise. Likewise, reciprocal relationships have been evidenced. For instance, it is well documented that exercise enhances self-esteem (Fox, 2000; Joseph, Royse, Benitez, & Pekmezi, 2014; Opdenacker, Delecluse, & Boen, 2009) and mental toughness (Crust & Clough, 2011; Gerber et al., 2012). The abundance of correlational data supporting these variables as predictors of exercise participation and persistence leaves a surprising gap in the research in terms of causation. Specifically, there is an absence of research considering the flipside of one of these relationships: persistence in exercise participation as the antecedent to approach motivation. To begin closing this gap, this study will use an 8-week exercise intervention with pre and post-test measures of approach motivation to see if exercise will result in greater approach motive tendencies. Additionally, this study will observe the role of nature and flow as moderators in the relationship between exercise and motivation. This study will focus on college freshmen. As these individuals assume the added responsibilities of college life away from their support systems, using or developing approach motive

tendencies may optimize their potential to thrive (Updegraff, Gable, & Taylor, 2004; Urry, Nitschke, Bolski, Jackson, Dalton, Mueller, Rosenkranz, Ryff, Singer, & Davidson, 2004).

Kourtney Jones, Brianna DeSantiago, Guadalupe Plasencia, Melissa Meza, Susan Ibarra, and David Chavez

Faculty Mentor: Dr. David Chavez

Department: Psychology

Title: *Using a Sports Enrichment Program to Promote Resilience in Children from Low SES*

Abstract: The current study was a qualitative exploration of the impact of a sports enrichment program on developing skills that promote resilience in children of low socioeconomic status (SES). Children of low SES are at a disadvantage in the availability of protective factors that aid in developing resilience, and self-regulation and social competence have been found to be strong predictors of resilience (Baumgardner & Crothers, 2009; Benard, 1991). Evidence exists to suggest that out of school programs can enhance self-regulation and social competence in children (Bandy and Moore, 2010). Consistent with a traditional CBPR approach, a planning meeting was held between staff of the Boys and Girls Club of Waterman Gardens (BGC) and the members of the CARE lab from CSUSB. This meeting was used for both groups to collaborate about the components of a soccer enrichment program. Based on the results of this meeting, a three-month program consisting of hour long, weekly sessions, was developed. During each session, volunteers led the children (N = 12) through soccer drills, game play, and debriefing discussions. To measure the impact of the program, transcripts of the debriefing sessions were analyzed for important themes. Based on the analysis, persistence, optimism, and prosocial behavior emerged as important skills the children gleaned from the program. These results support that self-regulation skills and social competence, critical predictors of resilience, can be enhanced by utilizing after school programs. The findings also support a major assumption of CBPR that community members are in a prime position

to determine the interventions most useful for their communities. In light of these findings, similar programs will be administered at the BGC.

Janae Koger

Faculty Mentor: Dr. Donna Garcia

Department: Psychology

Title: *Trust Me I Am Scientist: Acceptance of Threatening Information and the Role of Presentation*

Abstract: When people encounter information that contradicts their preferred beliefs and behaviors, they experience reactance and seek to reject the information. We tested whether reactance is most likely to occur when information is less rather than more open to challenge. In our study, 400 undergraduate women indicated the number of cups of coffee they consumed daily then read a blog containing false research showing a positive correlation between coffee consumption and breast cancer in women. Because reactance increases in line with the attractiveness of the constrained behavior, women's coffee consumption fit with our reactance theory framework. Participants were randomly assigned to read a blog where the author was described as a UCLA health scientist or science student, and the research was presented as opinion or as a fact. Participants then rated the plausibility of the research findings and the importance of limiting coffee consumption. We found that daily coffee consumption was unrelated to the plausibility of the information when reactance was likely low because participants could easily dismiss the credibility of the source (i.e., it came from a student) or regard the information as open to challenge (i.e., it was stated as an opinion). However, when the information was presented as factual and from a health scientist, women's coffee consumption was negatively associated with their acceptance of the information as true. Our research suggests that scientific factual information might be accepted to a greater degree by motivated skeptics if it is presented as more rather than less open to challenge.

Gia Macias & Sarah Tveit

Faculty Mentor: Dr. Joseph Wellman

Department: Psychology/Human Development

Title: *Perceived Weight Stigma and Inhibitory Control: The Moderating Role of Weight-based Discrimination*

Abstract: Increased prevalence of obesity has led to discussion of the issue as a threat to the health care system and a societal burden to others (Tomiya, 2014). Viewing the problem in this manner has resulted in greater stigmatization of the overweight (Tomiya et al., 2014), which can result in increased discrimination toward these individuals, rendering them vulnerable to negative psychological consequences (Tomiya, 2014; Puhl & Heuer, 2009). In the present study, we examined weight-based stigma as a moderator of the relationship between perceived weight stigma and cognitive ability (i.e., inhibitory control). We hypothesized that greater perceptions of weight stigma would be associated with decreased performance on an inhibitory control task when weight-based discrimination was made salient. Prior to the study, undergraduate students completed an online survey that assessed perceived weight stigma. Participants who considered themselves to be overweight were then recruited for a laboratory study involving an article reading task to manipulate the salience of weight-based discrimination, and a computerized cognitive task to measure inhibitory control. Preliminary results showed that participants who scored higher on perceived weight stigma performed significantly worse on the inhibitory control task than participants who scored lower on perceived weight stigma. Moreover, weight-based discrimination moderated this relationship, such that greater perceived weight stigma led to decreased inhibitory control ability only for those participants who read the discrimination article, but not for participants who read the control article. The present findings have theoretical and practical implications for both understanding and addressing the health consequences of weight-based discrimination.

Sarah McMullen

Faculty Mentor: Dr. Christina Hassija

Department: Psychology

Title: *Cultural Values, Negative Reactions to Sexual Assault Disclosure and Posttraumatic Stress Disorder Symptoms*

Abstract: The objective of this study was to examine—amongst recipients of unwanted sexual experiences—the relationships between perceived negative social reactions to their disclosures, cultural affiliation, and severity of PTSD symptoms. Participants were recruited from CSU San Bernardino. They completed a series of self-report measures assessing personal history of traumatic life events, details regarding their disclosures to others regarding an unwanted sexual experience, the types of reactions they received, collectivistic and individualistic cultural values, and PTSD symptom severity. Participation has been overwhelmingly female, and 150 participants will have completed the questionnaire by April 2016. We expect to see that the degree of survivors' perceived negative social reactions will correlate positively with the severity of symptoms of posttraumatic stress disorder. Second, we hypothesize that greater adherence to collectivistic values will be associated with more negative social reactions received upon disclosure. Third, we hypothesize that a greater degree of adherence to collectivistic values will be associated with greater severity of PTSD symptoms. Lastly, we expect that the relationship between negative social reactions and PTSD symptoms will be moderated by participants' adherence to collectivistic values. Results for Hypotheses 1, 2, and 3 will be calculated using bivariate correlation testing. The moderation proposed in Hypothesis 4 will be tested using hierarchical multiple regression analyses. The outcomes may be useful for tailoring treatment interventions of sexual assault survivors to their culture and social reactions experience. They additionally may be used in the design of public service campaigns targeting the informal support networks of survivors.

Ariel Mendoza and Susana Hernandez

Faculty Mentor: Dr. Jacqueline Leventon

Department: Psychology

Title: *Enhancing Effects of Emotion on Memory*

Performance: A Neurobehavioral Examination of Emotional Arousal

Abstract: As adults, we remember emotional experiences better than neutral experiences (“enhancing effect” of emotion on memory, LaBar & Cabeza, 2006). We examine the role of emotional arousal at the time of encoding in explaining the enhancing effect on memory. Adult participants complete two laboratory sessions, separated by a 5-10 day delay. At Session 1, participants view 90 negative, positive, and neutral scenes (30 in each condition), and create a story for each (encoding task). For negative and positive scenes, participants think of a story that either decreases or maintains their emotional arousal (15 trials of each type); neutral scenes receive neutral stories (30 trials). After the delay, participants return to the lab to participate in a recognition memory task: They view the 90 trials from their first session, mixed with 90 new trials (30 in each emotion condition), and indicate with a button press if the scene is old or new (recognition task). During the encoding and recognition tasks, we record event-related potentials (ERPs) as a measure of neural activity for emotion and memory processes. After recognition, participants provide ratings of emotional valence and arousal for the 90 scenes viewed at encoding. Data collection is ongoing. We will examine ERP and ratings responses to assess participants’ emotional experience to the stimuli, and determine the effectiveness of the story-manipulation in reducing emotion. Then, ERP and button-press responses will be used to assess memory for the stimuli, and how it may differ between emotion and manipulation conditions.

Jennifer Mendoza

Faculty Mentor: Dr. Christina Hassija

Department: Psychology

Title: *Dating Violence Myth Acceptance and Victim*

Blaming among College Students: Does Gender Matter?

Abstract: Intimate Partner Violence (IPV) affects approximately one in four women every year in the United States (Black et al., 2011). Women who have experienced domestic violence are at an increased risk for physical, emotional, and psychological symptomatology; increased fear, concern for physical safety, PTSD symptoms (Chrisler & Ferguson 2006; Kaur & Garg 2008). As a result, determining the potential implications IPV has on the victims requires extensive research and education. The manner in which a victim is responded to by others following their assault experience may have important implications for their adjustment following IPV. Identifying factors that contribute to the quality of responses towards victims of violence can help to inform future intervention and prevention programs; as well as assist in decreasing mental health problems, and reducing the incidence rates of IPV. The present study examined dating violence myths and victim blaming depending on severity of violence among male and female college students. A sample of 823 psychology undergraduate college students completed measures of social desirability (Crowne & Marlowe, 1960), perceived severity of violence (e.g., how serious do you consider the behavior), victim blame (Beineck & Krahe, 2010; Yamawaki, 2009), and domestic violence myths (DVMS; Yamawaki, 2011). The researchers examined three hypotheses: 1) female participants would report reduced perceptions of victim blame when compared to males, 2) female participants would report lower endorsement of dating violence myths as compared to male participants, and 3) that females would report greater perceptions of severity of violence when compared to their male counterparts.

Cody Miller and Sarah Leighton

Faculty Advisor: Dr. Amanda Rymal

Department: Kinesiology

Title: *The Use of Self Modeling as an Instructional*

Technique on Free Throw Performance

Abstract: The use of video technology as a form of instruction to acquire motor skills has been well established (e.g., Martini, Rymal, & Ste-Marie, 2011). However, in the development of Ste-Marie and colleagues’ (2012) conceptual model for the use of

observation/demonstration in applied settings, the authors noticed gaps in the literature. The focus of this presentation targets one of the gaps related to “who” is being observed. When investigating who is the most appropriate person to observe, research has shown that viewing oneself is more beneficial than viewing another. Nonetheless, it is still uncertain as to whether viewing the self at current skill level (i.e., positive self-review; PSR) or at a level not yet achieved through an edited video (i.e., feed-forward; FF) benefit skill learning in different ways. Within the FF technique, one could produce a mirror image of a skill to demonstrate an individual performing that skill on their non-dominant side when in reality it is their dominant side flipped. To date, only two studies have investigated mirror image self-modeling (e.g., Anderson and Keaney 2015; Steel, Adams, Coulson, Canning, and Hawtin, 2013) and the results differed. Thus, this research examines the effects of PSR self-modeling and FF self-modeling, in the form of a mirror image video, on basketball free throw performance of the non-dominant and dominant arms. Participants (n=87) were divided into four groups based on the type of video seen; (1) PSR Dominant, (2) PSR Non dominant, (3) FF Dominant, and (4) FF Non dominant arm (as if you are viewing that shot as your dominant). Participants completed 10 free throw shots on both arms over four sessions where they viewed their videos in sessions two and three. Preliminary results suggest that participants are increasing free throw performance. The complete physical performance results will be presented followed by discussion of future applications and limitations.

Derrick Ocampo

Faculty Mentor: Dr. Jacqueline Leventon

Department: Psychology

Title: *Infant Memory for Emotion Experienced in a Social Referencing Paradigm*

Abstract: Through social referencing, infants are able to use others’ emotions to guide their behavior during a novel situation. Although social referencing is a powerful tool to guide future behavior, few investigations have examined long-term changes in behavior and memory for emotions learned in social

referencing experience. In the present investigation, we examine 9-15-month-olds’ visual and overt behaviors for evidence of memory for emotion information acquired in a social referencing experience. Participants are seated in front of a computer and shown pre-recorded video clips of an experimenter who expresses facial and verbal emotion (positive or negative) toward one of two novel objects. Eye-tracking software is used to measure infants’ gaze durations and eye-movements toward the novel objects and face of the experimenter. After a delay (ranging from no delay to 30 minutes), the two objects are placed in front of the participant to allow them to interact with the object. Participants’ visual and overt behaviors to the objects are video recorded. Current findings indicate that during encoding (i.e., during the social referencing demonstration), children pay more attention to the face of the emoter during the negative condition than in other conditions. Further, infants give more attention to the object during the positive condition than in other conditions. Additional analyses will examine how attention during encoding relates to visual and overt behaviors after a delay to assess patterns of emotional memory. Results from this study will further enhance understanding of ontogeny of emotional memory in early childhood.

Arlette Osorno, Kamiya Stewart and John Tenorio

Faculty Mentor: Dr. Joseph Wellman

Department: Psychology

Title: *When Group and System Justification Motivations*

Conflict: The Role of Status Legitimizing Beliefs and Group Identification in Predicting Latinos Reaction to In-Group Claims of Discrimination

Abstract: Previous research has found that both group identification (the extent to which one’s group is central to their identity) and status legitimizing beliefs (SLB: the extent to which one believes the existing social system is just, fair and legitimate) predict individuals’ responses to claims of discrimination (Wilkins, Wellman, & Schad, 2015). Both these factors are considered to be motivational in nature; group identification motivates individuals to look out for the in-group, whereas SLBs motivate individuals to look out for and justify the existing social system. Among low status

individuals (e.g., women, ethnic minority members) group identification is associated with more positive evaluations and support for in-group members who claim discrimination. However, SLBs among low status individuals are associated with decreased support for in-group claimants, as their claims threaten the stability of the status hierarchy. In the current study we examine if there is an interaction between these conflicting motivations and reactions to identify under what circumstances low status individuals will support or fail to support in-group members who claim discrimination. In a sample of (N=243) Latino undergraduate students we find a significant interaction between SLBs and group identification in predicting reactions to a Latino claimant of discrimination, as well as support for the company against which the claim was made. In addition, we examine the effect of the presence or lack of presence of diversity statements. Implications for both group identification and system justification are discussed.

Nancy Palafox, Lizzet Pineda, and Zaira Cardona

Faculty Mentor: Dr. Kevin Grisham

Department: Geography and Environmental Sciences

Title: *Space and Place: Power, Sanctity, Media and Technology*

Abstract: How do people use power through media and technology to attach a sacred feeling to a particular space and place? The principal objective of this research project is to help understand the role of power in defining sanctity, and the role that media and technology play to influence an individual's perspective of space and place. Various studies have attempted to define space and place but being an abstract concept, an agreed definition has not been found. Due to the individualistic concept of space, people are constantly updating and redefining their meaning based on their personal perspective of the world. Within a specific place people have set an identity for that site, they have created spaces within that location that has become sacred to them. Place based identity literature suggests that identity is derived from people's attachment to

place. By an individual's identity being attached to a place that place then becomes sacred. Therefore a place that is defined as sacred is given power. The media can define for audiences whether a given space and place is sacred. This gives the media power over how people attach themselves to a given space and how they define the place where that space exist. Media is utilized to frame and alter the beliefs of the viewer. In this study, a mixed methods approach was employed. The methods applied include surveys presented online and follow up interviews.

Tanya Patterson and Ramiro Ferreyra

Faculty Mentor: Joseph Wellman

Department: Psychology

Title: *Stigmatized: Fearing Fat Leads to Choosing Higher Calorie Foods among the Overweight in Response to Stigmatizing Images*

Abstract: The overweight are consistently presented in the media as lazy, sloppy, and unintelligent. Previous research has suggested that weight stigma and fear of fat (FoF) may increase eating behavior and weight gain among the overweight. In the present study, we examined how weight stigmatizing images influence calorie selection among average and overweight individuals based on their FoF. Participants were randomly assigned to view stigmatizing images of the overweight, non-stigmatizing images of the overweight, or neutral images (i.e., objects). They then reviewed a restaurant menu and selected what they would like to eat. Finally, participants completed measures of perceived weight stigma and FoF. Results showed that the more overweight participants feared fat, the more calories they ordered in the stigmatizing condition. The opposite pattern was observed among average weight individuals in the stigmatizing condition. Fear of fat did not predict calorie selection in any of the other conditions. In an additional study, we replicated our calorie finding among a group of self-perceived overweight participants. Findings will be discussed from a resource depletion perspective.

Ryan Radmall

Faculty Mentor: Dr. Janet Kottke

Department: Industrial/Organizational Psychology

Title: *Measuring Metacognition: A Comparative Validity Study of the Learning Strategies and Self-Awareness Assessment*

Abstract: The construct of metacognition has appeared in psychological literature dating back to the early 1970's. However, the conceptualization of this construct has undergone important changes in the last 45 years as more precise measurement methods have emerged and research has expanded understanding of metacognition. As a result of previous research, metacognition has been considered mainly in terms of cognitive processes. However, one noteworthy aspect of metacognition that has yet to be explored is the behavioral indicators of metacognition. The current study attempted to provide convergent validity to a recently developed metacognition measure that focuses on behaviors rather than cognition. In doing so, three scales, two of which have been psychometrically established, were utilized to measure metacognition in terms of cognitive processes, behavioral indicators, and the relationship between the need for cognition and metacognition. Findings support the idea that metacognition consists of both behavioral and cognitive processes, and metacognition is negatively related to cognition. Implications of these findings, directions for future research, and limitations of the present study are discussed herein.

Kristy Rendler

Faculty Mentor: Dr. Jason F. Reimer

Department: Psychology

Title: *Cognitive Training: Improving Low Working Memory*

Abstract: The purpose of the study was to determine an effective method to improve individuals' cognitive abilities via computerized, targeted cognitive training. It was hypothesized that participants who were exposed to a memory-based, cognitive training video game, Recall, would show increased performance on a number of cognitive/visual measures, while those exposed to a visual processing task (Ultimeyes) would not. In

order to test this hypothesis, a total of 34 participants were recruited from California State University, San Bernardino, and randomly assigned to two separate training conditions, Recall or Ultimeyes (17 participants each). Participants in each group were pre-tested on five cognitive measures, (e.g. SPAN task, MST, WRAML, AX-CPT, & MNREAD). The SSPAN and OSPAN each measured working memory (WM) capacity, whereas, the WRAML was used to measure verbal WM. The MST and the AX-CPT measured cognitive control, while the MN Read measured reading speed and acuity. Following approximately 11 hours of training, participants in both conditions completed the same measures used during the pre-test. Consistent with the hypothesis, participants who trained with Recall showed significant improvements on measures of cognitive control and reading speed. Inconsistent with the hypothesis, participants who trained with Ultimeyes showed improvements on measures of working memory capacity and reading acuity. Current research is further investigating which cognitive training methods are most effective for improving these cognitive/visual memory abilities in college students.

Diana Robinson

Faculty Mentor: Dr. Christina Hassija

Department: MA in Psychology- General/ Experimental

Title: *Women Who Perpetrate Partner Violence: The Role of Emotion Regulation and Attachment Insecurity*

Abstract: Intimate partner violence is a prevalent and destructive social problem affecting millions of people worldwide. Intimate partner violence (IPV) includes physical/sexual violence, threats of physical/sexual violence, stalking, and psychological aggression. In addition to the physical consequences of IPV (e.g., injury, sexual and reproductive deficits), there are several psychological repercussions (e.g., depression, anxiety, PTSD). Although there is an abundance of literature regarding IPV perpetration by men, there is an insufficient amount of research examining the factors contributing to IPV perpetration by women. The purpose

of this investigation was to identify the underlying mechanisms of IPV perpetration among college women. Specifically, we were interested in examining the relationship among attachment insecurity (i.e., anxious and avoidant), emotion regulation strategies (i.e., expressive suppression and cognitive reappraisal), and IPV perpetration. Female participants (N = 707) recruited from CSUSB completed measures of adult attachment, emotion regulation (ER) strategies, and incidences of IPV. We predicted attachment insecurity and difficulties with ER would be predictive of increased IPV perpetration. Moreover, we expected the relationship between attachment insecurity and IPV to occur indirectly through the use of maladaptive ER strategies. Correlation analyses will be used to determine the strength of the relationship among insecure attachment, emotion regulation, and IPV perpetration. Preliminary data analyses are supportive of the research hypotheses. Although preliminary, these results support the need for further examination into the underlying mechanisms of IPV perpetration by women. Moreover, the need to address attachment insecurity and emotion regulation strategies in the therapeutic approaches used to address IPV is evident.

Krista Rudberg, Andrea Moran, & Jessica Razo

Faculty Mentor: Dr. Sanders McDougall

Department: MA in Psychology- General/ Experimental

Title: *Dopamine Receptor Inactivation in the Caudate-putamen and Nucleus Accumbens Differentially Affects the Locomotor Activity of Young Rats*

Abstract: Microinjecting the alkylating agent EEDQ into the caudate-putamen (CPU) of adult rats both inactivates DA receptors and blocks DA mediated behaviors. In contrast, DA receptor inactivation in the CPU of preweanling rats causes a paradoxical increase in DA agonist-induced locomotor activity. We have hypothesized that the heightened behavioral responsiveness exhibited by EEDQ-treated preweanling rats is due to elevated levels of high affinity D2 receptors. In other words, an EEDQ-induced increase in the percentage of D2(High) receptors is proposed to more than compensate for the overall loss of DA

receptors, thus resulting in enhanced behavioral responsiveness when challenged with a DA agonist drug (cocaine or NPA). The purpose of the present study was threefold: (1) to replicate the finding that EEDQ potentiates the behavioral effects of NPA when microinjected into the CPU; (2) to determine whether administering EEDQ into the nucleus accumbens (NAcc) also potentiates the effects of NPA; and (3) to examine whether the ability to potentiate or attenuate DA agonist-induced locomotion is influenced by the amount of striatal and accumbal tissue affected by EEDQ.

David Sanchez

Faculty Mentor: Dr. Sergio Iniguez

Department: Psychology

Title: *Early-Life Exposure to Ketamine Alters Risk-Taking Behavior in Adulthood*

Abstract: Early-life exposure to ketamine mediates an anxiolytic effect in adulthood. Epidemiological reports indicate mood-related disorders, such as depression, are among the most severe and potentially incapacitating forms of psychiatric illnesses affecting individuals across the world. Interestingly, depression has only been recognized to affect children and adolescents until recent years, and as a result, the long-term effects of pharmacological treatments for this particular condition have not been thoroughly assessed. Recently, ketamine, an N-methyl-D-Aspartate receptor antagonist, has been proposed as a possible antidepressant treatment showing rather rapid-acting and long-lasting effects, when compared to other traditional pharmacological agents, such as selective serotonin reuptake inhibitors. Thus, research that sheds light into the potential long-lasting effects of ketamine, in an age-specific manner, is warranted - especially when considering ketamine's abuse potential. To address this issue, we exposed adolescent c57BL/6 mice to ketamine (0 or 20 mg/kg) once a day for 15 consecutive days, [postnatal day (PD) 35-49]. Twenty-one days later (PD70), they were tested on behavioral responses to aversive-inducing situations. Specifically, their behavioral reactivity to the elevated plus-maze (EPM), a paradigm used to assess anxiogenic behavior, was examined. The results of this experiment

showed that adult mice exposed to ketamine during adolescence spent more time in the open arms of the EPM, thus, displaying a long-lasting anxiolytic effect. As such, our results indicate that exposure to ketamine during adolescence decreases vulnerability to anxiety-eliciting situations in adulthood.

Kevin Silberman

Faculty Mentor: Dr. Donna Garcia

Department: Psychology

Title: *Political Motivations behind Beliefs about Homosexuality*

Abstract: Many studies have examined relationships between people's support of same-sex marriage and beliefs about what causes someone to be gay. However, little research has examined the factors that shape these beliefs. Gay rights supporters (LGB allies) tend to believe in "born that way" (BTW) explanations for homosexuality, whereas non-supporters of gay rights (non-allies) tend to believe in "controllable" explanations (e.g., poor parenting, childhood sexual abuse). Within the literature, the motivation to be accurate and the motivation to reach a particular conclusion have been described as two distinct types of motivated reasoning. Because there is no conclusive empirical support on what determines sexual orientation, LGB allies and non-allies are not likely to agree with certain arguments for the purpose of being accurate, but instead may agree with them because of a perception that they will lead to a desired conclusion (i.e., increased or decreased LGB acceptance). We examined the possibility that beliefs about homosexuality are motivated by the perception that certain explanations would be effective in promoting LGB rights and acceptance. Participants rated 14 explanations on how much they agree with each and on how much each would promote LGB rights and acceptance. LGB allies were more likely than non-allies to agree with a BTW argument, whereas non-allies were more likely than allies to agree with controllable arguments. Furthermore, the relationship between ally status and agreement with an explanation was mediated by the perception that the supported explanation is effective at promoting LGB rights and acceptance.

Kamiya Stewart

Faculty Mentor: Dr. Kelly Campbell

Department: Psychology

Title: *Wedding Rituals & Marital Outcomes*

Abstract: Couple rituals range from everyday activities to once-in-a-lifetime events. Weddings are arguably the most elaborate, complex, and rare couple ritual. The purpose of the present study was to examine how wedding ritual enactment and wedding ritual satisfaction were associated with marital satisfaction and commitment. The wedding rituals examined included the bridal shower, bachelor/bachelorette party, wedding reception, and honeymoon. The participants were recruited from a university participant pool and through social media sites (e.g., Facebook, Twitter). They included 725 married, heterosexual individuals who completed an online survey containing the Investment Model Scale (satisfaction and commitment subscales), wedding ritual questions (written by the researchers), and demographic questions. Students received extra credit to be used toward their university courses and community-based participants were not offered an incentive for their study completion. We found that three of the wedding rituals--bachelor/bachelorette parties, wedding receptions, and honeymoons--were positively associated with satisfaction and commitment. Satisfaction with each wedding ritual significantly predicted marital outcomes. Wedding ritual conformity was negatively associated with wedding ritual satisfaction. Wedding reception enactment was the most significant contributor to satisfaction whereas bachelor/bachelorette party enactment was the most significant contributor to marital commitment. Study limitations and directions for future research are discussed.

Valerie Taber

Faculty Mentor: Dr. Manijeh Badiee

Department: Psychology

Title: *Romantic Rejection in Platonic Relationships: Perceptions and Reactions to the Friend Zone*

Abstract: Although social dominance, romantic rejection and cross-sex friendships have been investigated separately, romantic rejection in platonic relationships is a subject that has been explored

minimally in research. Romantic rejection has recently been coined as 'stuck in the friend zone,' a term which has gained popularity in American lexicon since its first appearance in 1994; since then, it has appeared in movies, television shows, internet memes, and think-pieces by feminist critics. Despite this strong presence in pop-culture, this phenomenon and its implications have not been investigated in academia. This study provides a better understanding of the relationship between social dominance orientation and reactions to romantic rejection in platonic relationships in terms of gender, race/ethnicity, and sexual orientation. The purpose of this study is to gain a better understanding of the Friend Zone by examining what characteristics predict negative reactions to rejection, and potentially provide needed resources for coping to these groups. We conducted an online survey of 49 questions regarding Social Dominance Orientation, Pursuit Behaviors, Withdrawal Behaviors, Neutral Behaviors, Externalization of Blame, Internalization of Blame, Friend Zone Perceptions, and Friend Zone Usage. Participants included male and females from a southern California university; extra credit was offered as incentive to participate. An ANOVA will be used to determine which characteristics (of gender, race/ethnicity, and sexual orientation) are the best predictors of negative reactions to rejection in platonic relationships. Additionally we will determine whether social dominance orientation is correlated with negative reactions to romantic rejection, and whether social dominance orientation is correlated with negative beliefs about the Friend Zone.

Candace Taggart

Faculty Mentor: Dr. Eugene Wong

Department: Psychology

Title: *Cognitive Training: Improving Deficits in Working Memory for College Students*

Abstract: The aim of this study is to examine the effects of cognitive training among college students who exhibit deficits in working memory (WM). Namely, the effects of two iPad-based games (Recall and Ultimeyes) were evaluated using a pre- and post-testing paradigm. Because working memory is associated with academic performance, improving deficits in this capability is

crucial in a scholastic setting. Students from California State University, San Bernardino will be asked to participate. Based upon a working memory screening, those who obtain a scaled score of 7 or lower on a norm-referenced measure of working memory will be eligible for the training program. Ten hours of training will be administered in 30-minute sessions, over the course of 4 weeks. The pre-test tasks include the Wide Range Assessment of Memory and Learning 2 (WRAML2), the Operation-Span (O-SPAN), and the Symmetry-Span (S-SPAN). Pre- and post-test scores will be compared after all training sessions have been completed. We expect to find a main effect on working memory for the dual n-back training (Recall) game, but no main effect for the visual acuity task (Ultimeyes). Three one-way Analyses of Variances (ANOVA) will be used to test for significant differences between pre- and post-test scores ($p < .05$). The ANOVAs will test for pre- and post-test differences as indicated by the WRAML2, O-Span, and S-Span.

Christina Taylor

Faculty Mentor: Dr. Eugene Wong

Department: Psychology/ Human Development

Title: *Cognitive control and Controlled Retrieval*

Abstract: The study examined cognitive control and controlled retrieval processes which are important functions associated with working memory and episodic memory. Much research has been conducted on the two separately, although limited research has been done to show how the two work together. The task used to measure cognitive control was the AX-CPT task and the task used to measure controlled retrieval was the MST task. The purpose of the experiment was to contrast AX-CPT scores in different cue probe delays with the MST, to understand whether or not The MST can predict scores on the AX-CPT. It was hypothesized that individuals who score high on the MST will perform better on the AX-CPT than those who score lower. Furthermore, the experiment consisted of 60 participants, were all English speaking, and 18 years of age or older. They were presented with two computer tasks, one at a time. Here they were tested on their ability to use cognitive control and controlled retrieval. A 2x2x4 mixed subjects ANOVA

was ran to analyze the results. The results showed that when performance in the MST was lower, participants performed better on the BX trial of the AX-CPT, and slower on the AY trial, thus finding opposite results than what was predicted. This demonstrated people with good working memory tend to do worse in tasks that require the use of episodic memory.

Diana Tuttle

Faculty Mentor: Dr. Janet Kottke

Department: Psychology

Title: *Follow the Leader: Follower Strategies Enabling Toxic Leadership*

Abstract: Compromising stability within successful organizational frameworks exists a pernicious trichotomy of junctions. Researchers Padilla, Hogan, and Kaiser (2007) conceptualized the complexities of The Toxic Triangle (TTT) as an incongruent confluence between destructive leaders, susceptible followers, and a conducive environment. The purpose of this research was to contribute to the distinctions of the TTT theoretical framework, paying special attention to the less researched follower role and how followers may enable toxic leadership schemas through organizational alignments. Followers of toxic leaders have been broadly categorized as colluders and conformers. Colluders engage with the toxic leader for personal gain and are characterized as individuals who are ambitious, hold similar worldviews, and have bad values. Conformers obey out of fear and are characterized as individuals who have unmet needs, low core self-evaluations, and low maturity (Padilla et al. 2007). The distinct division of followers may enable a toxic leader to exploit the organizational environment. Toxic leaders may react to the distinct differences through purposeful positioning of the followers within the organizational setting. Of special interest to this study is where the follower aligned him/herself in proximity to a toxic leader. How closely one chooses to align him/herself with a toxic leader as a reaction to toxic leadership may be important in lending support to follower categories. Additionally, a moral reasoning scale was used, which may be useful to reveal the underlying cognitive processes that help to delineate colluder or conformer

acceptance of toxic leadership. Results, limitations, and implications are discussed.

Rebecca Williams

Faculty Mentor: Dr. Janet Kottke

Department: Psychology

Title: *Gender Equality and Leadership*

Abstract: The purpose of this study is to examine variables that may contribute to understanding gender inequalities in leadership. Because gender stereotypes continue to play a role in career choice, it remains important to learn what might mitigate the advancement of women into leadership roles. Career Entry Point (CEP) refers specifically to the expected and aspired career entry position and compensation when entering the workforce in a preferred field. Watts et al., (2015) found that expected and aspired career positions were indicators of job attainment and future job status, respectively. McCormick, Tanguma and López-Forment (2002) indicated high Leadership Self-efficacy (LSE) to be a strong predictor of leadership behavior and a distinguishing factor from non-leaders. The construct of Affective Motivation to lead (a-MtL) is thought to influence the inclination to obtain leadership training and the tenacity and effort intensity of a leader (Cho, Harrist, Steele & Murn, 2015). With nearly 50% of women in the workforce pipeline and so few in top leadership roles, the stagnation in leadership advancement may begin at the CEP. The expected and aspired position and compensation may be negatively affected by CEP and thus lead to job dissatisfaction, decreasing the desire to pursue leadership opportunities (Hoobler, Lemmon & Wayne, 2014). Data are currently being collected from CSUSB students, asking them to rate their expectations in attaining a supervisory job, expected and aspired job compensation and to complete the surveys for a-MtL, LSE and CAS.

Savannah Wilson**Faculty Mentor: Dr. Kelly Campbell****Department: Biological Psychology****Title:** *Jealousy and Domestic Violence: An Exploration of Individual Differences*

Abstract: The present study examined whether the intrapersonal variables of attachment style and sex roles would moderate the association between jealousy and domestic violence. We predicted that the association between jealousy and domestic violence would be positive for individuals with insecure attachment styles (i.e., high on anxiety, high on avoidance) and negative for those with a secure style. We also predicted that men who scored high on instrumentality would be more prone to domestic violence than those who scored high on androgyny and expressivity. The only criterion for study participation was that individuals be involved in a romantic relationship. Participants were recruited using a university participant management system (SONA), social media sites (e.g., Facebook, Twitter) and Craigslist.org (volunteer sections). The survey, which was hosted on Qualtrics.com, consisted of demographic questions, the Experiences in Close Relationship Scale-Short Form (Wei, Russel, Mallinckrodt, & Vogel, 2007), the BEM Sex Role Inventory (Bem, 1974), and the Conflict Tactics Scale Short Form (CTS2S) (Straus, 2004). We found a positive association between jealousy and domestic violence for those with insecure attachment styles. In terms of sex roles however, both instrumentality and androgyny were associated with some degree of domestic violence among men. In terms of study limitations, we relied on self-report survey data and socially desirable response bias may have influenced our results, particularly because domestic violence is a stigmatized topic. However, a study strength is that our sample was ethnically diverse (a majority were Latino American), which extends work in this area.

Marissa Wollard & Raul A Maldonado**Faculty Mentor: Dr. David Chavez****Department: Psychology****Title:** *Queering LGBTQ+ Research Utilizing Photovoice*

Abstract: This study looks at the issues of Lesbian, Gay, Bisexual and Trans* (LGBT) youth through a Queer Theory lens. Using Community-Based Participatory Research (CBPR), youth were given the opportunity to communicate issues relevant to their lives with Photovoice, a qualitative narrative assessment of their community. This study focuses on a Photovoice project with youth who attend Gay Straight Alliance (GSA) meetings in a Southern California high school. This study will be focusing on the SHOW portion of the SHOWED prompt.

Sam Worrall & Abigail Earle**Faculty Mentor: Dr. Christina Hassija****Department: Psychology****Title:** *Psychopaths: Shrugging Off Trauma*

Abstract: All individuals possess some degree of psychopathic characteristics, however, the degree or level of those characteristics vary depending on a multitude of factors. Psychopathy is a continuous personality characteristic that includes high impulsivity and thrill-seeking, while typically maintaining low empathy and anxiety (Paulhus & Williams, 2002). Exposure to traumatic events can lead to the development of posttraumatic stress disorder (PTSD), however, symptom severity can differ depending on characteristics of risk resilience (Moeller & Hell, 2003; Connor & Davidson, 2003). Previous research shows that women are at higher risk for PTSD than men; possibly due to gender specific risk factors and the higher prevalence of interpersonal traumas (Christiansen & Hansen, 2015). College students from a western university completed a demographic questionnaire, the Life Events Checklist, the PTSD Checklist 5, the Self-Report Psychopathy Scale: Version III, and the Connor-Davidson Resilience Scale (Blake et al., 1995; Weathers, 2013; Paulhus & Williams, 2002; Connor & Davidson, 2003) online. Our hypotheses were as follows: Psychopathy will be negatively associated with

PTSD symptoms (H1); Characteristics of resilience will be negatively associated with PTSD symptom severity (H2); Psychopathy will be positively associated resilience (H3); Males will score higher on the subscale of callous affect compared to females (H4); Males will score higher on the subscale of erratic lifestyle compared to females (H5); Males will score higher on the subscale of anti-social behavior compared to females (H6); and females will score higher on the subscale of Interpersonal manipulation compared to males (H7).

Alexus Vargas, Carol Castillo, Edit Cebreros and Tiffany Saldana**Faculty Mentor: Dr. Nancy Acevedo-Gil****Department: Sociology****Title:** *Community College Pathways of Low Income Latinas and Latinos*

Abstract: Compared to other racial groups, Latinos encounter many obstacles when it comes to educational attainment. Statistics show that within the Latino community, few are able to prosper in transferring from community colleges to four-year universities. Without the proper guidance, low-income Latino students will continue to leave college without obtaining a degree, thus remain in poverty. Therefore, in order to improve transfer rates, it is important that barriers within community colleges are explored. Data was obtained through open coding, axial coding, and selective coding. Twenty Latino students attending a California State Community College were interviewed about why they chose to attend community college, what the overall experience has been like, and how prepared they are to transfer to a University of California or California State University. Data indicates that students' outcomes are related to access, or lack of access, to counselors. Also, basic skills math courses have both positive and negative contributions towards students' college education. Finally, students who participate in programs feel well prepared to transfer to a four-year university, as opposed to students who do not participate in programs. In order to improve transfer rates, the education system needs to improve college advising by creating mandatory meetings and making sure counselors advise students efficiently. In addition, the passing rate for basic skills courses needs to improve, and stronger outreach to

help students get involved in school programs needs to be implemented. Such programs should help enhance student's understanding of the graduation and transfer process.

Education



Brenda Arnold

Faculty Mentor: Dr. Connie McReynolds

Department: Vocational Rehabilitation Counseling

Title: *Neurofeedback at the Institute for Research, Assessment & Professional Development*

Abstract: This presentation will discuss neurofeedback, a non-invasive therapy that trains individuals to better control one's mental state through self-regulation of brain activity. The Institute for Research, Assessment and Professional Development uses SmartMind, a neurofeedback computer program that is widely utilized and recognized as an effective tool for enhancing brain functionality. This program can increase memory, concentration, focus, and endurance, as well as help balance brain functioning for individuals suffering from a wide range of disorders, such as ADD/ADHD, Anxiety, Depression, PTSD, mTBI, and other emotional and/or behavioral disorders.

Luquanda Hawkins

Faculty Mentor: Dr. Mary Texeria

Department: Educational Leadership

Title: *The Faxe of Racism*

Abstract: African American studies provide a sense of identity for our youth. Most young Black Americans (in California particularly) have no idea where they come from, who their Ancestors are, nor do they have a healthy opinion of their culture. The media plays a very large role in presenting negative impressions of African American

people and our youth have nothing positive to combat this consistent deluge of negativity with. Many Black students despise their race! They do not desire to be Black. I have heard Black students calling themselves mixed, saying that they were of another cultural persuasion or just simply responding No, when asked if they were Black. It is truly sad and my heart goes out to this generation.

Jeara Romasanta

Faculty Mentor: Dr. Shawn Patrick

Department: Counseling and Guidance

Title: *San Bernardino Strong: A Narrative Therapy Group Counseling Intervention*

Abstract: This case study examined the use of a Narrative therapy based group counseling intervention. The purpose of the group was to respond to the community needs following the December 2, 2015 mass shooting that occurred at the Inland Regional Center in the city of San Bernardino, California. The Narrative therapy based group counseling intervention was intended for those directly or indirectly impacted by the violence. Main interventions included building resilience and creating community amongst group members in order to take a stand against the fear and isolation that can be perpetuated after mass shootings. Participants were asked to address the usefulness of the group, shared their experiences, and created alternative stories. Participants also were asked to express what the city of San Bernardino meant to them. The format of the group was intended to be shared with others and can be used as a tool to respond to community needs in the aftermath of violence.

California State University, San Bernardino

The Office of Student Research
&
The Office of Graduate Studies

5th Annual Student Research Symposium

May 19, 2016

Presented By

Dr. Francisca Beer
Dr. Jeffrey Thompson

Special Thanks

We would like to thank all of the faculty, staff, and students at CSUSB who contributed their time and effort towards the success of this event.

5th Annual
Student Research Symposium

