



19th Annual Capstone Conference



Saturday, April 25, 2020

10:00am - 4:00pm

University Honors Program

McNair Scholars Program

California State University Stanislaus

One University Circle, Turlock CA 95382

(209) 667-3180 | csustan.edu/honors | csustan.edu/mcnair

Acknowledgements

Special thanks to the following faculty who generously agreed to serve as **Research Mentors** for our **2019-20 Senior Capstone Research Projects**:

Ritin Bhaduri (Biological Sciences), Bret Carroll (History), Jennifer Cooper (Biological Sciences), Victoria Cortez (Psychology), Kelly Cotter (Psychology), Monica Flores (English), Deborah Forester (Psychology), Andrew Gardner (Biological Sciences), AnaMarie Guichard (Psychology), Aletha Harven (Psychology), Wura Jacobs (Kinesiology), Björg Jóhannsdóttir (Mathematics), Meggan Jordan (Sociology), Choong-Min Kang (Biological Sciences), Patrick Kelly (Biological Sciences), Daehee Kim (Computer Science), Kyu Han Koh (Computer Science), Xuejun Liang (Computer Science), David Lindsay (Accounting and Finance), Victor Luevano (Psychology), Melanie Martin (Computer Science), Sari Miller-Antonio (Anthropology), Cueponcaxochitl Moreno Sandoval, Brian Morsony (Physics), Jamila Newton (Biology), Jennifer Peltier (Nursing), Scott Russell (Chemistry), Harold Stanislaw (Psychology), Koni Stone (Chemistry), James Strong (Management Operations and Marketing), My Lo Thao (Biological Sciences), Lisa Timmons (Psychology), Wing To (Physics), Blake Wilson (Criminal Justice), Katie Wiskow (Psychology), Yanhong Wu (Mathematics), Andrew Young (Philosophy), Jim Youngblom (Biological Sciences), and to Jamila Newton (Biological Sciences) our Honors Presentation Seminar instructor. Thanks to Therese Lunt for her work with our sophomore Service-Learning students and to Ellen Bell (Anthropology), Suditi Gupta (Psychology), and Tim Held (Library) for guiding the research activity of our juniors.

The following faculty taught in the Honors Program this year:

Christina Acosta (Ethnic Studies), Ian Albright (Philosophy), Ralph Becker (Social Sciences), Ellen Bell (Anthropology), Tom Carter (Computer Science), Dave Colnic (Political Science), Andrew Conteh (Political Science), Jim Cook (History), Nathan Erro (English), Jeffrey Frost (Anthropology), Suditi Gupta (Psychology), Tim Held (Library), Erin Hughes (Political Science), Heather Jarrell (Anthropology), Therese Lunt (History), Lisa Mariona (Communication Studies), Chris Nagel (Philosophy), Jamila Newton (Biological Sciences), Richard Randall (Political Science), Jennifer Ringberg (Anthropology), Motecuzoma Sanchez (Ethnic Studies), Robert Sledge (English), Kyle Stubbs (Communication Studies), Michael Tumolo (Communication Studies), Christopher Turner (Philosophy), Richard Wallace (Anthropology) and Arnold Webb (English).

Seniors in the Honors Program are encouraged to tackle complex problems using methods and knowledge drawn from relevant disciplines.

Honors Program faculty and research mentors offer critical feedback and guidance along the way. The main objective is for students to explore, gather and analyze information effectively, and to reflect on the implications of what they have discovered. Group discussions help to promote thoughtful questioning. The goal is to communicate knowledge, judgments, and original perspectives based on careful inquiry, exploration and analysis.

2020 Capstone Conference Summary Schedule

Saturday, April 25, 2020

10:00a.m. - 4:00p.m.

10:00am

Welcome

10:05am-12:00pm

Capstone Research Poster Session

- ❖ HONS 3990-1
- ❖ HONS 3990-2
- ❖ HONS 3990-3
- ❖ HONS 3990-4

12:00pm - 1:00pm

Break

1:00pm - 3:00pm

Senior Research Presentations

- ❖ Education
- ❖ Social Sciences, Business, and the Humanities
- ❖ Psychology and Neuroscience
- ❖ Biomedicine and the Physical Sciences

3:00pm - 4:00pm

Keynote Address: Maria de Jesus Mora, M.A.

Beyond the Degree: Possibilities for Undergraduate Students in The San Joaquin Valley of California

(Maria de Jesus Mora is an ABD doctoral student in the Sociology Graduate Program at UC Merced. She will be completing her PhD and joining CSU Stanislaus as Assistant Professor of Sociology in the fall of 2020.)

4:00pm

Conference concludes

Session Participants

***HONS 3990-1:** Joana Alfaro, German Astorga, Aurora Ceja, James Green, Marlen Martinez-Lopez, John Molthen, Juana Nieto Vazquez, Georgina Orozco, Lauren Previtali, Lourdes Ramirez, Emma Van Hoogmoed, Guadalupe Villanueva

HONS 3990-2: Dustin Babb, Breanna Cannon, Megan Dean, Jaryd Von Eskeets, Farhat Khairzadah, Dennis Lawson, Saranjit Moundi, Diana Moya, Navjot Nahal, Tawny Ortega, Marcus Ruddicks, Bradley Sanow, Sabrina Stephens, Alex Trujillo, Rocci Vizzusi,

HONS 3990-3: Brittany Camara, Cierra Duke, Catherine Fitzsimmons, Colin Gage, Abram Galvez, Lisa

Lewis, Elizabeth Luna, Andrew Miller, Carley Newbill, Malika Shoker, Zephan Wood, Kerry Young
HONS 3990-4: Esmeralda Acatitla Velazquez, Reina Arthington, Catiel Ballard, Damien Conoly, Ryan De Los Santos, Timea Friesen, Roy Johns, Rachel Klopfer, Abdulla Mammadsoy, Lincoln Mattwandel, Andrea Neeley, Zackary Quinlan, Catarina Sousa, Jair Torres

Education: Kendra Souza, Alexandra Sibrian, Sarah Kline, *Mary Vardeh, *Arlena Gavino, Matthew Trevena, *Jasmin Cornejo, Karen Ramos Lupercio, Timothy Nersy, Keith Gordon

Social Sciences, Business, and the Humanities: Hannah Lockwood, Connor Skustad, Kaydon Potter, Jasmyn Romo, Jacqueline Cerda, Jasmine Mann, Berenice Franco Corrales, Bethany Harper, David Toepfer

Psychology and Neuroscience: *Danielle Simpson, *Fernando Bautista Martinez, *Elizabeth Torres, Brooke Nawrocki, MaggiJo Erickson, Stevie Kloepfer, Noe Rangel, Makayla Lawrence, Kenneth Foster, Jaqueline Villegas

Biomedicine and the Physical Sciences: Mikaela Magwili, Brandon McMinn, Lizeth Soto Garcia, Lynsey Hillberg, *Rachel Choate, Amy Hill, *Angel Avalos, Elizabeth Cole, Laura Hernandez, *Cassandra Olivas, *Efrain Covarrubias

***Denotes McNair Scholar**

Junior Research Poster Session

10:05 am - 12:00 pm

Moderators: Ellen Bell, Professor of Anthropology, University Honors Program Director, McNair Scholars PI & Suditi Gupta, HONS 3990 Instructor, Sociology Department & Araceli Garcia, McNair Scholars Program Director

Honors 3990-1

10:05am - 10:30am

German Astorga: Application of Afterglow Simulations to Remodel Short Gamma Ray Bursts

Aurora Ceja: Racialization: How does it affect Immigration of People of Color?

James Green: Discovering the Limits of CRISPR for Plasmid Mutagenesis

Marlen Martinez-Lopez: Exploring efficient visualization of big data using R shiny application

John Molthen: p65 Stabilization via Fluorescence

Juana Nieto Vazquez: Examining perceived stress among first-generation college students

Georgina Orozco: Linear Movement Apparatus Performance Using Internal and External Focus in Senior Adults

Lauren Previtali: Androgens and Gynephilia

Lourdes Ramirez: Advances in Forensic Anthropology: Human Identification

Emma Van Hoogmoed: Teaching Robots Biologically Inspired Tasks

Guadalupe Villanueva: Risk Behaviors Among Overweight/Obese U.S. Adolescents: An Examination of the Impact of Sex, Race/Ethnic, and Individual Factors

Honors 3990-2
10:30am – 11:00am

Dustin Babb: Body Size and Life Expectancy in Domestic Dogs, and Their Ambiguous Relationship

Breanna Cannon: Comparing Methods of the Analytical Analysis' of Substances in Forensic Toxicology

Megan Dean: A Collection of Short Stories and Poems

Farhat Khairzadah: The Effects of Anxiety Reducing Coping Mechanisms on Nursing Students' Test Scores

Dennis Lawson: Support for Student Savings

Diana Moya: The Effect of Translanguaging in Bilingual Education

Navjot Nahal: The Effect of Resistance Training on Individuals with Chronic Lower Back Pain

Tawny Ortega: Women, Culture and Society

Marcus Ruddicks: Establishing a Minimum Income Level for Local College Students

Bradley Sanow: Are Current Efforts to Reduce Mass Incarceration in America Effective

Sabrina Stephens: Stress from Side Effects in Patients on Antipsychotics

Rocci Vizzusi: Phenomenology of the Self

Honors 3990-3
11:00am – 11:30am

Cierra Duke: Gender Influence on Perception of Disabilities and Disorders

Catherine Fitzsimmons: First Responders and the Mentally Impaired

Colin Gage: The Graphic Novel's Victorian Roots

Abram Galvez: Corporate Implications following Moore's Law's Progression

Lisa Lewis: Neuroplastic Responses to Mindfulness Based Stress Management

Elizabeth Luna: Behaviors and Peer Acceptance in Inclusive Classrooms

Carley Newbill: How School Type Influences Overall Performance and Enrollment

Malika Shoker: The Roles of Trust and Rapport in Teaching

Zephan Wood: A Comparative Analysis: Perceptions of Civil Liberties in Israel and New Hampshire

Kerry Young: Effects of Trait-Anxiety and Mindfulness on Female Sexual **Functioning**

Honors 3990-4
11:30am – 12:00pm

Esmeralda Acatitla Velazquez: Social Pressures: Gender Fluidity of Dorian Gray & House of Mirth

Reina Arthington: Conditions for Ethical Knowledge

Ryan De Los Santos: Improving Solar Panel Efficiency in the Stanislaus County Region

Timea Friesen: Effects of the Flipped Classroom on Student Motivation and Performance & Student and Teacher Satisfaction

Rachel Klopfer: Eating Disorders in Competitive Athletes

Abdulla Mammadsoy: How easing process of obtaining building permits and expanding construction may help to solve the housing problem in Modesto

Lincoln Mattwandel: Exploring the Impact of Flags of Convenience on the Rights and Safety of Sailors

Catarina Sousa: The Association Between Crime Expressed in Media and Minors

Jair Torres: The Effects of Simplified Diagrams on Student Misconceptions About Evolution

Senior Capstone Presentations

1:00 pm - 3:00 pm

*Moderator: Ellen Bell, Professor of Anthropology, University Honors Program Director, McNair Scholars PI
James Tuedio, Dean, College of Arts, Humanities and Social Sciences, University Honors Program Director
Araceli Garcia, McNair Scholars Program Director
Jamila Newton, Department of Biological Sciences, HONS 4960 Instructor*

Education **1:00pm – 1:30pm**

Kendra Souza (Liberal Studies – Child Development): The Relationship between Childhood Poverty and Academic Success, Parental Influence, and Health

Faculty Mentor: Victoria Cortez

Alexandra Sibrian (Child Development – Middle Childhood): The Relationship between Social Emotional Learning and Teacher Beliefs

Faculty Mentor: Dr. Lisa Timmons

Sarah Kline (Psychology): An Examination of Anxiety and Stress in School-Age Children with Autism

Faculty Mentor: Dr. Katie Wiskow

***Mary Vardeh** (Mathematics – Subj Matter Prep MATH BA): Informing the Need of Critical Thinking in Mathematics

Faculty Mentor: Dr. Björg Jóhannsdóttir

***Arlena Gavino** (Mathematics – Subj Matter Prep MATH BA): Informing the Need of Critical Thinking in Mathematics

Faculty Mentor: Dr. Björg Jóhannsdóttir

Matthew Trevena (Computer Science): Supporting Creative Lesson Planning Through Database Design

Faculty Mentor: Dr. Kyu Han Koh

***Jasmin Cornejo** (Computer Science): Predicting Student Success to Ensure Equity for Students

Faculty Mentor: Dr. Melanie Martin

Karen Ramos Lupercio (Psychology): The Effects of Online versus In-Person Psychology Courses on the Students Overall Grade in the Course

Faculty Mentor: Dr. AnaMarie Guichard

Timothy Nersy (Biological Sciences): Is There a Correlation Between Time of Day and Academic Performance?

Faculty Mentor: Dr. Yanhong Wu

Keith Gordon (Computer Science): Improving quantum computing education for undergraduate students

Social Sciences, Business, and the Humanities
1:30pm - 2:00 pm

Hannah Lockwood (Psychology): Promoting a Sustainable Future Through Human Attitudes & Actions

Faculty Mentor: Deborah Forester

Connor Skustad (Criminal Justice – Law Enforcement): The Relationship Between Increased Incarceration and Recidivism Rates

Faculty Mentor: Dr. Blake Wilson

Kaydon Potter (Business Administration – Marketing): An Update of the Laws, Regulations and Privacy concern on Digital Marketing in E-Commerce

Faculty Mentor: Dr. James Strong

Jasmyn Romo (Business Administration -Accounting): The Effects of Past Financial Business Scandals on The Current Business World

Faculty Mentor: Dr. David Lindsay

Jacqueline Cerda (Communication Studies – Relational & Organizational): Alternate Reality Games and the Possibilities

Jasmine Mann (Business Administration): Does Gender Discrimination Against Women in Corporations Still Exist Today?

Berenice Franco Corrales (Ethnic Studies): School Policies and Practices Effects on Female Minority Students as Adults

Faculty Mentor: Dr. Cueponcaxochitl Moreno Sandoval

Bethany Harper (History): The Influence of Jane Austen’s Works on Societal Attitudes Regarding Women and Marriage, Education, and Slavery from the Early Nineteenth to Twentieth Centuries

Faculty Mentor: Dr. Bret Carroll and Dr. Monica Flores

David Toepfer (Computer Science): Drowning in My Thoughts

Psychology and Neuroscience

2:00pm - 2:30 pm

***Danielle Simpson Rojas** (Experimental Psychology): Examining the Relationship between Physical Activity and Cognitive Function in Older Adults

Faculty Mentor: Dr. Kelly Cotter

***Fernando Bautista Martinez** (Psychology): Gender Differences in Memory Recall Among College Students

Faculty Mentor: Professor Deborah Forester

***Elizabeth Torres** (Psychology): Relationship Between Sleep and False Memory

Faculty Mentor: Kelly Cotter

Brooke Nawrocki (Psychology): The Correlation Between Complex Childhood Trauma and Adult Empathy Outcomes

Faculty Mentor: Deborah Forester

MaggiJo Erickson (Psychology): Body Dysmorphia in the Age of the Internet

Faculty Mentor: Dr. Aletha Harven

Stevie Kloepfer (Psychology): Brain Stimulation as a Viable Treatment for Antisocial Spectrum Disorders

Faculty Mentor: Dr. Jamila Newton

Noe Rangel-Villa (Psychology): Adding a Human Aspect to the Reduction of Stigma

Faculty Mentor: Dr. AnaMarie Guichard

Makayla Lawrence (Biological Sciences): Analysis of Port Wine Stains and Perceived Public Stigma Based on Level of Scientific Knowledge

Faculty Mentor: Dr. Victor Luevano

Kenneth Foster (Psychology): Yogacara Buddhism and The Storehouse Consciousness

Faculty Mentor: Dr. Andrew Young

Jaqueline Villegas (Psychology): Biophilia and Ecowellness: Examining Nature Connectedness

Faculty Mentor: Dr. Harold Stanislaw

Biomedicine and the Physical Sciences

2:30pm - 3:00pm

Mikaela Magwili (Nursing Licensure): Studying the Effects of Touch and Pressure Therapy on the Fingers of the Hand

Faculty Mentor: Jennifer Peltier

Brandon McMinn (Biological Sciences): The Effects of Opioid Analgesics on Physical Therapy Effectiveness

Faculty Mentor: Dr. Jamila Newton

Lizeth Soto Garcia (Business Administration): Melatonin and its Effects: The Truth Behind this Popular Supplement

Faculty Mentor: Jamila Newton

Lynsey Hillberg (Biological Sciences – Molecular, Cellular, & Microb): Quantitation of Ethanol in Kombucha Beverages with Evidence of Bottle Fermentation by Gas Chromatography

Faculty Mentor: Dr. Scott Russell

***Rachel Choate** (Biological Sciences): Disruption of Mating-type Switching in *Saccharomyces cerevisiae* Strains by CRISPR/Cas9 for Cell Fusion

Faculty Mentor: Dr. Choong-Min Kang

Amy Hill (Biological Sciences): A Sustainability Study on Aquaponics

Faculty Mentor: Dr. Andrew Gardner

***Angel Avalos** (Biological Sciences): Chemical Induction of PHB Depolymerases in Bacteria

Faculty Mentor: Dr. My Lo Thao

Elizabeth Cole (Biological Sciences): The Detection and Extraction of Microplastics from Biota, Water, and Sediment from Point Pinos, CA

Faculty Mentor: Ritin Bhaduri

Laura Hernandez (Biological Sciences – Org, Ecol, and Evol Biology): The Ecological Relationship of Mammals, Their Habitat, and Daily Temporal Shifts

Faculty Mentor: Patrick Kelly

***Cassandra Olivas** (Computer Science): The impact of agriculture on body condition in the California ground squirrel

Faculty Mentor: Dr. Jennifer Cooper

***Efrain Covarrubias** (Physics): Relativistic Effect of Cosmogenic Muons

Faculty Mentor: Dr. Wing To

Abstracts of Senior Capstone Presentations

Chemical Induction of PHB Depolymerases in Bacteria

Angel Avalos

Petroleum-based plastics have a negative environmental impact based on their accumulation and inability to be broken down. Some consequences of the persistence of plastics are the leeching of petrochemicals into the environment and the ingestion of plastics by animals. The use of bacterially-derived bioplastics is a possible solution to having the convenience of plastics without the environmental harm. Poly-3-hydroxybutyrate (PHB) is a bioplastic that is synthesized by certain bacteria to store carbon and energy. In order to use PHB as an effective energy source, *Acidovorax wautersii* strain H8 synthesizes PHB depolymerases – enzymes that degrade PHB. Specifically, *A. wautersii*, produces PHB depolymerases that are exoenzymes, which are secreted from the cell to use PHB synthesized by other bacteria. These exoenzymes allow PHB to degrade more quickly than petroleum-based plastics, meaning PHB-based plastics may cause less environmental harm. To find a quicker way to degrade PHB, *A. wautersii* was placed in the presence of different chemicals. This was done to see if chemical induction of PHB depolymerase activity was possible. Through the use of assays, PHB depolymerase activity was correlated to the measured cloudiness of solutions. PHB itself and its monomer, 3-hydroxybutyrate, both induced depolymerase activity. Knowing which chemicals induce PHB depolymerase activity will allow for an efficient degradation protocol for PHB-based plastics. Although PHB is not commonly used for plastic products as of yet, finding a means for efficient bioremediation emphasizes the need to have a solution before the potential problem of PHB-based plastic accumulation.

Gender Differences in Memory Recall Among College Students

Fernando Bautista Martinez

Memory recall impacts cognitive performance in both men and women. The present research examined gender differences in memory recall through a Free Recall Memory Test and a Visual-Spatial Test. It was hypothesized that women will score higher in performance compared to men in Free Recall and that men will score higher in performance compared to women in Visual-Spatial recall. A sample of 246 students (212 females, 34 males) were recruited through the CSU Stanislaus Department of Psychology online participant pool (SONA). All participants completed the Free Recall Test which consisted of memorizing 10 gender-neutral words and 10 numbers in 60 seconds. After reading a short distractor paragraph, participants were then instructed to select the correct words and numbers from the previous list. Participants then completed the Visual-Spatial Test, which consisted of five short video clips showing a 4x3 label with letters. After viewing each video, participants were asked to select the correct sequence

shown in the video. To test whether there were differences in memory recall between the two genders, data were analyzed using an independent samples t-test. The research hypothesis was not supported. No significant results were found relative to free memory recall, or visual spatial recall. Although not significant, women scored slightly higher in free memory recall and slightly lower in visual spatial memory recall compared to men. Findings from this study can be used to improve study habits, enhancing memory and academic performance. Additionally, scores from both the free recall and visual spatial task suggest there are no differences between male and female students.

Alternate Reality Games and the Possibilities

Jacqueline Cerda

As technology advances, there are more communication channels than ever before. Between video chatting, texting, emailing, and calling, people are finding themselves in need of becoming experts at navigating these different channels and using them to communicate effectively. Similarly, globalization has also increased due to technological development. It is due to this globalization that more companies are allowing their employees to work remotely. Work teams are no longer just working face to face, but can now be expected to collaborate over a range of obstacles such as distance, time zones, and cultures. The purpose of this study is to see how ARG players collaborate and engage in creative problem solving in a variety of mediums to accomplish goals. By studying ARGs, we can gain greater insight into the collaborative strategies that players use in ARGs and apply them to telecommuting workplaces.

Disruption of Mating-type Switching in *Saccharomyces cerevisiae* Strains by CRISPR/Cas9 for Cell Fusion

Rachel Choate

Yeast, *Saccharomyces cerevisiae*, is an important organism used to make a multitude of products for human consumption including bread, beer, and wine. There are different strains of yeast that exhibit a variety of flavor profiles and ethanol content during alcohol fermentation due to their differing genetics. To exhibit new characteristics and flavor profiles in alcoholic beverages, genetic changes to existing yeast strains must occur. I plan to use cell fusion of two strains to make a novel hybrid strain. For successful cell fusion, both strains must sporulate to produce stable haploids that cannot switch their mating type. I am interested in using English cider for cell fusion; however, it has the ability to switch its mating rendering impossible to use. I plan to solve this problem by using CRISPR/Cas9 technology to introduce a mutation into the gene that allows the mating type switch to occur. A common mutation found in natural heterothallic yeast was A>T at the 1424th position in the HO gene, which is the substitution I believe will inhibit English cider from switching its mating type. Once a mutant is identified, cell fusion experiments of English cider with banana sake yeast will create novel yeast hybrids. These hybrids can be used to make new alcoholic beverages that exhibit good flavor profiles while also having a high ethanol content.

The Detection and Extraction of Microplastics from Biota, Water, and Sediment from Point Pinos, CA

Elizabeth Cole

300 million tons of plastic is produced annually and remains in the environment, breaking down into increasingly smaller pieces. These microscopic pieces of plastic can cause physiological and chemical injuries on organisms and their bioaccumulation could harm the ecosystem. Microplastic pollution is a

major emerging threat to global environmental health. This study examines the presence of microplastics in the biota and its surrounding marine environment. Samples were collected at Del Monte beach in Monterey Bay, CA. By detecting and quantifying microplastics in the environment, the pervasiveness of microplastic pollution along the California coast can be determined. Detection of microplastics in crabs, sediment, and water was completed by digesting organic material and filtering the digest. Quantification of microplastics was done using Nile red and observation under a fluorescent microscope. Our results indicate that microplastics are a widespread contaminant in the marine environment of Monterey Bay, found in two thirds of the sample population. We also found a correlation between the size and weight of the crabs and the number of microplastics found.

Predicting Student Success to Ensure Equity for Students

Jasmin Cornejo

In this paper we use machine learning algorithms to create predictive models of student success on the Writing Proficiency Screening Test (WPST) at California State University, Stanislaus. The data used included academic history, SES (socioeconomic standing), and demographic for the 3357 students who were tested in 2009-2011 at Stan State. The goal of this research project was to better identify “at risk” scholars before taking the WPST. The WPST is a graduation requirement for all students and to fail this exam may mean another semester in school. Identifying at risk scholars with predictive models may be the key in reducing cost and length of time in school.

Relativistic Effect of Cosmogenic Muons

Efrain Covarrubias

Muons are 2nd generation lepton which have a mass of 105 MeV, 200 times more massive than an electron, with a negative charge. When cosmic rays hit earth’s atmosphere, pions are created and decay into muons within 26 nanoseconds. Muons interact electromagnetically with other particles and therefore can travel a relatively long distance while losing energy in the process. The lifetime of muons is about 2.197 microseconds and sometimes travel at near the speed of light. According to Classical Mechanics, muons travelling nearly at the speed of light, 2.998×10^8 m/s, will take approximately 50 microseconds to reach sea level which is 25 times longer than muon lifetimes. Muons can however, be detected at sea level at a rate far greater than classical predictions. This is due to time dilation, a modern physics prediction made by Albert Einstein for objects travelling near the speed of light [2]. When taking a relativistic approach detection becomes possible and the predictions become reliable.

Body Dysmorphia in the Age of the Internet

MaggiJo Erickson

Social media is becoming increasingly popular among younger generations, and the mental health effects of its usage are widely unknown. Usage of social media may be linked to an increased rate of body dysmorphic disorder (BDD) symptoms among users, and may pose harm to user’s body perception, based on prior research establishing correlations between social media usage and body image, satisfaction and surveillance. It is important to study this potential correlation due to the nature of BDD, as those affected typically have distorted perceptions of their own physical appearance (both facial and body features), which is often the focus of social media websites. Previous research has yet to establish a correlation between social media usage and BDD specifically. Social media usage, in the context of this

study, refers to participants' engagement with Instagram, due to its popular photo-sharing features. Data has been collected through the use of a survey solicited to university students via SONA. The survey consists of three scales, the Body Dysmorphic Disorder Questionnaire (BDDQ) developed by Dr. Phillips (2009) was used to measure participants' rate of BDD symptoms. The Instagram Intensity Scale (Ellison, 2007) and the Passive and Active Use Measure (PAUM) (Trifiro, 2018) were used to measure participants' activity on Instagram. The data derived from the survey was coded and analyzed in SPSS. Findings indicate positive correlations between participants' BDDQ scores and their scores on both the Instagram Intensity Scale and the PAUM. The gender and age of participants were not significantly correlated with scores on the Instagram activity measures or the BDDQ.

Yogacara and The Storehouse Consciousness

Kenneth Foster

Contemporary psychology is awash in Buddhist ideas. These ideas from a very long and ancient tradition may contain new insights into how we understand the mind today. Can we find constructs that could open new doors into our assessment of the human condition? Analysis of this question will consist of a reading on the central idea from the Yogacara Buddhist school, the storehouse consciousness and its seeds. Clear conceptual overlap is found between the ideas from the school and those of Piaget and Freud. Piaget's ideas of intelligence development, and the structural functioning of cognition are one area. Another is Freud's dynamic unconscious, seen as the psychic energy we are not aware of that drives our minds. The ideas of the West could be used to give a language for understanding the concepts of the Buddhist school. I believe that these concepts will give insight into better understanding the human mind and treating suffering.

School Policies and Practices Effects on Female Minority Students as Adults

Berenice Franco Corrales

"The purpose of this research is to find out how school policies can serve as a predisposition for female students of color to enter the school to prison pipeline. Research shows that students of color receive harsher punishments for the same action as non-minority students (Abudu, 2017). School policies are not applied evenly. It is important to find out why this is, how it can happen and what can be done to help solve the problem. This study will be using the methodological framework design of Critical Ethnography. This study will use only data as well as the survey administered to the students. The participants will be students from Stanislaus State. The goal of this research is to find if policies such as "zero-tolerance" policies have affected the lives of female students of color both personally and academically."

Informing the Need of Critical Thinking in Mathematics

Arlena Liryce Gavino

Based on the National Assessment of Educational Progress, it seems that the public education system in California is failing to provide students with essential problem solving and critical thinking skills in mathematics. Many studies have proven that students do not rationally think about mathematics word problems. Though, it comes to question that this issue may come from outdated and unrelatable terminology, or context of the problem. Using a modernized version of the "How Old is the Sheppard?" problem (which states "There are 125 sheep and 5 dogs in a flock. How old is the shepherd?") in schools in the Central Valley, this research evaluates if word choice and context plays a significant role in students' understanding of nonsensical mathematics word problems, if there is a difference in critical

thinking skill as students progress throughout their educational career, and if there may be underlying factors that influence students' critical thinking. This information will help teachers, text book authors, and others invested in mathematics education, create better materials for students.

Improving Quantum Computing Education for Undergraduate Students

Keith Gordon

Quantum computing is a promising field of computer science but is difficult to teach to undergraduate students, often requiring extensive backgrounds in computer science, mathematics, and physics. This research project is focused on taking the complex subject of quantum computing and making it more accessible to undergraduate computer science students. I will be examining literature about effective teaching methodology, and then applying these methods to create a hypothetical course syllabus and outline. The syllabus will contain information such as example projects, assignments, and grade breakdowns. The course outline will consist of the most crucial topics necessary to have an acceptable quantum computing introductory course. I will also select some of these topics to teach using my proposed teaching methods to help readers better understand how these topics could be taught.

The Influence of Jane Austen's Works on Societal Attitudes Regarding Women and Marriage, Education, and Slavery from the Early Nineteenth to Twentieth Centuries

Bethany Harper

People question whether fiction actually does have the ability to exert influence on its readers, and as such, fiction's influencing effect on its readers is the main subject of interest in this study. Jane Austen, who was a female author in the late eighteenth to early nineteenth centuries will be used as the foundation of this project. Did her three novels: *Pride and Prejudice*, *Mansfield Park*, and *Northanger Abbey* exert influence on attitudes of middle-and upper-class individuals in American and British society regarding the topics: women and marriage, education, and slavery in the nineteenth and early twentieth centuries? By compiling newspaper articles and books dating from the 1810s to the 1910s, my hypothesis, that these books did exert influence on their readers, but only when it was beneficial for the reader, can be tested. This hypothesis anticipates that the reader was in control of how much he/she was influenced by the novels in question. From this study, the general fields of history and English/Literature will be shown to be intricately linked, which may result in individuals realizing the need to place a greater emphasis on the interconnectedness of the two fields. In addition, the limits of fiction's ability to influence may assuage fears about fiction's ability to corrupt, brainwash, or influence any individual absolutely. A close examination of many sources from the period of interest shows that the main topic of influence that these Jane Austen novels had was on education, specifically on English writing. Therefore, fiction does seem to have some power of influence over its readers, but that influence is not all-engrossing.

The Ecological Relationship of Mammals, Their Habitat, and Daily Temporal Shifts

Laura Hernandez

The San Joaquin River National Wildlife Refuge (SJRNWR) is located approximately 20 miles west of Modesto, CA. With the vast number of agricultural fields surrounding the refuge, this protected area provides a safe place for many California native species and endangered animals such as the riparian brush rabbit. This project investigates the mammals encountered at the SJRNWR to see if habitat type

and daily temporal shifts influence their activity. This was done by analyzing and comparing mammalian activity of three different habitat types (riparian, grassland, and transitional) through a digital photo collection collected via camera trap. The results of this experiment are expected to show that mammalian activity at the SJRNWR will be more abundant at night in riparian habitat. With this data, conservation biologist will be able to properly invest in restored habitats at the refuge that receive the most mammalian inhabitants.

A Sustainability Study into Aquaponics

Amy Hill

Traditional farming methods have grown significantly over the centuries, but many of these are still environmentally due to inefficient utilization of natural resources. In recent years, people are becoming more informed on the status of our natural resources, leading to a rise in research into sustainable methods. One of these growing methods is aquaponics. In aquaponics, plants are grown in a porous substrate through which nutrient rich water is pumped up from a fish tank that is seated near or below it. Aquaponics uses six times less water than traditional farming methods, making it more eco friendly. The majority of research into aquaponics is specialized to large systems, even though systems can range from all shapes, sizes, and styles. For this experiment a 10 gallon aquarium will be used to determine at what size system becomes cost effective and worth the investment of setting up and maintaining. The system will use the media based grow bed method. The produce being considered for this experiment include, pak choy, basil, romaine, and wheatgrass. The system will use 7 goldfish to help fertilize the plants. The current size of the system is not expected to be very efficient, but data can be gathered to determine how large the set up would have to become in order for the cost of set up and maintenance on the system to be justified by money saved on produce for a family of four. The information gathered through observations and produce data will be applied for a sustainability study analysis on how an aquaponics set up can be made universal and expanded to fill a niche in urban agriculture and decrease food desert areas in large urban centers.

Quantitation of Ethanol in Kombucha Beverages with Evidence of Bottle Fermentation by Gas Chromatography

Lynsey Hillberg

The purpose of this study was to determine the percent of alcohol by volume (ABV) of several commercial kombucha tea beverages and determine whether or not bottle fermentation can lead to significant increases in ABV values. In this study, gas chromatography was used to quantify the ABV of several commercially available kombucha teas. Standard solutions were prepared to generate a standard curve correlating ethanol ABVs to chromatographic peak areas. 1-propanol was used as an internal standard in all samples. Of the kombucha samples represented, there was a sample set of unpasteurized bottles where two were fruit-infused and one that was not. These samples were then allowed to bottle ferment at room temperature and analyzed in a weekly study. The fruit-infused samples had initial average ethanol ABV's that were ~1.4-1.8% and at the end of three weeks increased to ~2.6-3.5%. In contrast, the non-infused tea sample's initial ABV's ranged from ~0.57-0.90% and after three weeks increased to ~1.0-1.8%. This is not surprising as the fruit-infused kombucha teas most likely had more residual fermentable sugar available for bottle fermentation. The initial ABV values in all of the samples tested were higher than 0.5%, which is what the Alcohol and Tobacco Tax and Trade Bureau (TTB) considers as an alcoholic beverage. This raises a concern over both the distribution and labeling of kombucha teas that are sold as non-alcoholic beverages.

An Examination of Anxiety and Stress in School-Age Children with Autism

Sarah Kline

The present paper will explore the positions of various published articles and their discussions on stress and anxiety symptoms in children with Autism- particularly children who are participating in some sort of public school setting. Among all the articles examined, a common element discussed was the heightened presence of both stress and anxiety in children who are on the Autism spectrum, especially when compared to children who do not have the disorder. Most studies were conducted using school-age children, which was an important factor given that children tend to exhibit higher anxiety levels as a whole when they begin their education process. To support this finding, the paper will include evidence from in-person interviews with children who have Autism, as well as children who do not have the disorder.

Brain Stimulation as a Viable Treatment for Antisocial Spectrum Disorders

Stevie Kloepfer

Individuals with Antisocial Personality Disorder (ASPD) and psychopathy, although distinct, are similar in that they typically negatively impact society both through acts of manipulation and acts of crime. These disorders are characterized by a failure to conform to social norms, reckless disregard for their own safety and that of others, consistent irresponsibility, and lack of empathy and remorse. Other distinguishing characteristics include deceitfulness, impulsivity, irritability and aggressiveness. There is evidence to suggest that the ventromedial prefrontal cortex, the anterior cingulate cortex, the amygdala, and the density of grey matter in the brain are involved in the severity of the disorders. Despite this knowledge, effective treatment options for ASPD and psychopathy have not been established due to the complexity and range of traits that vary from person to person. Therefore, if the neurosurgical procedures of Deep Brain Stimulation and Transcranial Magnetic Stimulation lessen the severity of the maladaptive and harmful traits exhibited by individuals with ASPD and Psychopathy, (e.g. aggressiveness, lack of empathy) they should be implemented into medical practice as viable treatment options.

Analysis of Port Wine Stains and Perceived Public Stigma Based on Level of Scientific Knowledge

Makayla Lawrence

Port Wine Stains (PWS) are vascular malformations caused by mutations in GNAQ genes, which lead to improper blood vessel development near the epidermis. They are occasionally accompanied by physiological and cognitive deficits that vary depending on the location of the marking; examples include glaucoma if near the eyes and developmental delays or seizure activity if near the head. The possibility of developing these symptoms varies depending on the severity of the stain; however, due to the fear this possibility instills, it has become commonplace to have PWS removed, even on infants no more than a few weeks old. The reason why fear tends to steer people into irrational decisions this way stems from two main concepts that seem to directly oppose one another: "fear of the unknown" and "fear of knowing." With these ideas combined, people develop a "foresight" for fear to act upon, leading them to avoid confrontation with the subject in question and instead develop an opinion on it with the little knowledge they possess; because this small amount of knowledge made them fearful of the subject, they

begin to regard it with hostility. This is the basis of stigma. Because PWS are rare, 0.3% of the population, they are more likely to be an unfamiliar concept to the average person, and thus more likely to be a target of negative stigma. This in turn gives rise to self-stigma in individuals with Port Wine Stains, leading to the decreased mental health and self confidence that has been noted in the group today.

Promoting a Sustainable Future Through Human Attitudes & Actions

Hannah Lockwood

Due to the impending climate crisis caused by human activity, it is essential to change human attitudes and actions to be more sustainable. The purpose of the present study was to investigate psychological barriers to human environmental action, and to establish a link between specific behavior types and different domains of psychological barriers. A sample of 262 students were recruited from California State University's Department of Psychology's online participant pool (SONA). Participants surveyed were presented with four categories of human environmental action: transportation, water, purchasing, and waste. Next, they were presented with the 24-item Dragons of Inaction Psychological Barriers (DIPB) scale (Lacroix et al., 2019), which contains five subscales to measure five types of psychological barriers: Change Unnecessary, Conflicting Goals and Aspirations, Interpersonal Relations, Lacking Knowledge, and Tokenism. Based on previous research, it was hypothesized that behaviors that are more invasive to daily life (ex: driving less) will pose barriers such as conflicting goals and aspirations, whereas less invasive behaviors (ex: purchasing "green" products) may primarily be affected by participants' lack of knowledge. However, contrary to what was expected, results indicated that there was no significant effect of condition relative to lacking knowledge. There was however a significant effect for conflicting goals and aspirations. Participants who selected the "driving less" behavior indicated that their main obstacle was lacking knowledge versus that of conflicting goals and aspirations. Although not significant, as expected, participants who selected behaviors relative to purchasing "green" products indicated that their main obstacle was lacking knowledge.

Studying the Effects of Touch and Pressure Therapy on the Fingers of the Hand

Mikaela Magwili

In the college environment, students are faced with many stressors, which can impact the body's health. Serious conditions involving physical health problems, mental health diagnosis, and negative coping have been associated with unmanaged stress. The purpose of this study is to test the effects of touch and pressure therapy for stress relief among college students to provide positive coping options and improve health outcomes. The participants sit down while a dominant hand grabs each finger of the other participants' hand to apply hand held pressure for 15 seconds each. Physiological signs can be assessed for changes in stress level. An automatic wrist blood pressure cuff is used to obtain a blood pressure count, an automatic pulse oximeter is used to assess heart rate, and nursing training is utilized to assess respiration count. A modified perceived stress index is used to assess current stress. The expected results of the research would be reduced signs of stress such as lower heart rate, blood pressure, and respiration, and reports of lower stress levels. Studies show positive implications for touch and pressure on the body for stress relief. Studying the effects of touch and pressure on the fingers of the hand can be used to discover new areas for obtaining stress relief.

Does Gender Discrimination Against Women in Corporations Still Exist Today?

Jasmine Mann

Women have constantly battled discrimination in the workplace. Occupational segregation, pay

discrimination, or bias against working mothers, are all battles women have fought in the past and these three areas of discrimination will be the focus of the research in this article. Gender discrimination, for the purpose of this research, is defined as the unfair treatment compared to men and the targeting, creating some type of hindrance or injustice in their work or pay, of women in a corporation. Some companies continue to break laws, but, due to pressure from corporations, many women have their voices suppressed. Further research on discrimination in the workplace will bring the topic to light and push for policy change. With the comparison of peer-reviewed archived data, the anticipated result is that gender discrimination against women does exist today based on cognitive and statistical evidence uncovered by the articles researched thus far.

The Effects of Opioid Analgesics on Physical Therapy Effectiveness

Brandon McMinn

Within the last decade, the Center for Disease Control (CDC) has recorded epidemic levels of prescription opioid use. The increased consumption of these analgesics are leading to several related health issues that have a negative impact on patient's overall health. Opioid induced hyperalgesia (OIH) is a condition that distorts the perception of pain in long term opioid users. Physical therapy employs the use of therapeutic exercise and bio-mechanics to treat pain instead of drugs or surgery. This study examined the difference in physical therapy effectiveness in patients that utilize opioids and those who did not during therapy treatments. Effectiveness was measured by examining verbal pain ratings, functional outcomes, and active range of motion in patients from both sample groups. The data was collected from Central Valley Physical Therapy patient medical records in Stockton California from 2014 to 2019. The data was analyzed and compared which showed a significant difference in therapy effectiveness of the two sample groups.

Keynote Address

Beyond the Degree: Possibilities for Undergraduate Students in The San Joaquin Valley of California

Maria de Jesus Mora

As a first-generation women of color, Maria's journey took her to undergraduate and graduate studies at the University of California Merced. As an undergraduate, she participated in the Latino Leadership Initiative at Harvard University. She also actively engaged in several student organizations, including MEChA and Hermanas Unidas. Maria also participated in undergraduate research opportunities by helping conduct Spanish surveys in an unincorporated community in Merced County. She also collected data on crucial social movement campaigns in Central America. Those undergraduate research experiences ultimately led Maria to the sociology PhD program at UC Merced. Maria wanted to conduct research that was meaningful to her personal experiences and to her community. Being from an immigrant family, Maria's dissertation research explores immigrant rights campaigns against policy threats (anti-immigrant legislation) in order to better understand how low-income Latino immigrant communities are able to sustain mobilization over the long-term at the local level. This research is being carried out in seven cities in the San Joaquin Valley using interview and archival data with funding support from UCMEXUS and the UC Merced Resource Center for Community Engaged Scholarship (RECESS). Maria will share with students the options and opportunities beyond graduation, by sharing her own personal journey to earning a PHD.

The Correlation Between Complex Childhood Trauma and Adult Empathy Outcomes

Brooke Nawrocki

Researchers Decety and Jackson define three key components of empathy: a correct response to emotions and a sharing of one's emotional state; an ability to cognitively understand the other person's point of view; and an ability to self-regulate and avoid mixing up one's own feelings with another's. Furthermore, they define Complex Childhood Trauma (CCT) as ranging from ongoing emotional to ongoing physical abuse, or even just one scarring episode witnessed in childhood (2013). According to the U.S. Department of Health and Human Services (Child Welfare Information Gateway, 2015), close to 686,000 children were victims of CCT in the year 2012. Psychologists have started to analyze the outcome patterns of adults who suffered from CCT in crucial developmental years. Studies have been conducted on a possible correlation between empathy and Complex Childhood Trauma. However, these studies are few and far between and offer conflicting results. Obtaining 248 California State University, Stanislaus student participants, the present study utilized two surveys to understand if a correlation between CCT and adult empathy outcomes exists. Evidence suggested that adults who scored lower in different subsets of CCT generally reported higher levels of empathy. Based on this conclusion, a discussion on the implications of why different subsets of abuse presented mostly negative correlations with empathy follows.

Is There a Correlation Between Time of Day and Academic Performance?

Timothy Nersy

Studies have shown that if school start times are pushed back to a later time, an improvement in academic performance will occur. The studies I have come across are all subjected to non-college students, none on college students. For that reason, I questioned if a similar trend exists in college students. Since college students vary in start time, I have modified my study to see if there is a correlation between time of day, and the academic performance of college students. By "Academic Performance", I am simply referring to the overall grade a student gets in a course. This information can be useful because students and faculty will now have knowledge of knowing what time of day students are at the highest potential of performing well in classes, considering there is a correlation. If there is no correlation, this information can also be useful because then thoughts that time does affect performance can be laid aside, considering many people prefer later classes than earlier ones. I overall predict that there indeed is a correlation between time of day and academic performance, and that later-timed classes will result in better grades.

The impact of agriculture on body condition in the California ground squirrel

Cassandra Olivas

California's Central Valley is a drastically altered landscape, with almost every arable square mile converted to agriculture (Mitchell et. al. 2015). The impact of agriculture can be detrimental due to habitat loss and the subsequent loss of biodiversity, or beneficial if those crops serve as a supplemental food resource for local species. In California ground squirrels (CGS), populations adjacent to agriculture experience benefits, such as larger-bodied young-of-the-year with a higher body condition (Ulm 2019). However, there are no existing studies that have addressed the impact of agriculture on individual fitness within these populations. Using a geospatial analysis software (ArcGIS v10.6), the foraging range was estimated for each individual squirrel based on capture points, and the percentage of overlap with agriculture was quantified. Preliminary analyses using linear regression have found no significant

relationship between the percentage of overlap with agriculture and body condition. Future analyses will include treatment of additional covariates, such as sex and age.

Laws, regulations and privacy concern on digital marketing in e-commerce

Kaydon Potter

Digital marketing is the use of the internet, mobile devices, social media, search engines, and other channels to reach consumers. While these advanced methods of digital target marketing come with distinct advantages for advertisers and consumers alike, they also raise privacy concern for online shoppers and expose marketers to potential legal risk. The current laws and regulations in regards to online behavioral advertising and consumer privacy have not been effectively able to prevent the ongoing data breaches and malicious use of personal consumer information. The purpose of this article is to explore the lack of policy and regulation in place to efficiently regulate digital marketing as well as the effects that digital marketing and privacy concern may have on e-commerce. Specifically, this article attempts to (1) to provide an overview of Online Behavioral Advertising and Web Cookies, (2) to cover the current and evolving laws and regulations in place with an emphasis on the Federal Trade Commission, (3) analyze the effects of these laws on consumer privacy concern and e-commerce, and finally (4) discuss some recommendations for online marketers. This paper will also explore the principles learned and the connections that can be made between companies, consumer data, data privacy, and web browser cookies that are used in advanced forms of digital marketing.

The Effects of Online versus In-Person Psychology Courses on the Students Overall Grade in the Course

Karen Ramos Lupercio

Dependency on technology continues to rise as it brings ease to many different aspects of our lives, including college education. Previous research has revealed that with advancing technology, courses once restricted to be completed in person are also now available through fully online settings. Throughout continued research there is a lack of emphasis on the specific academic success achieved by the students taking the different style courses. It could be that in-person courses are most beneficial due to a forced time frame resulting in better time management or better communication opportunities as compared to online courses. However, it can also be argued that online courses consist of more straightforward assignments and therefore grades can be easier to keep up with. This particular study is an attempt to provide research regarding academic success, through measure of the overall course grade, in online versus in-person psychology college courses while looking at variables such as opportunity for communication, interest in the course, work difficulty, and grade satisfaction. It is hypothesized that students who take psychology courses in-person earn a higher overall grade than students who take psychology courses online. This is an important study to bring light to the academic success rate of students in either style of psychology courses as well as the variables that may be resulting in such rates which can then be reviewed and used to better the way psychology courses are taught.

Adding a Human Aspect to the Reduction of Stigma

Noe Rangel-Villa

Stigma towards seeking psychological help is among the main contributing factors in the

underutilization of mental health services. The essential goal of this current study is to determine whether humanization plays a role in the effectiveness of exposure as a means of reducing stigmatization towards seeking psychological help. In other words, will exposure methods with a more “human” aspect have a greater effect on the reduction of stigmatization scores and change in attitudes? There will be four different levels of exposure: statistics on mental illness/counseling; a written testimonial; an audio testimonial; and a video testimonial. Results are expected to show higher reduction of stigma (or lower stigmatization scores) with the more humanized exposure groups. The results of this study, provided they are significant, can be used to inform the psychological community at large on the best methods to reduce stigmatization.

Examining the Relationship between Physical Activity and Cognitive Function in Older Adults

Danielle Simpson Rojas

Cognitive decline is a natural result of the aging process. Prior studies have shown that physical activity slows this age-related cognitive decline. We aimed to explore what specific aspects of cognitive functioning are related to physical activity. Therefore, we examined 49 participants from an independent living community of senior citizens who reported their typical frequency, duration, and intensity of physical activity. These responses were then weighted by metabolic equivalents, summed, and scaled to represent overall physical activity. Participants completed the Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV), which is the gold standard assessment of cognitive function. We analyzed the relationship between self-reported physical activity and objective data obtained from gym facility key cards, which revealed that participants’ self-reports of physical activity were accurate ($r = .96$, $p < .001$). Next, we examined the relationship between self-reported physical activity and cognitive function. Results indicated a significant positive correlation between physical activity and two WAIS-IV subtests, such that more frequent physical activity was associated with better working memory ($r = .35$, $p = .02$) and better visuospatial skills ($r = .32$, $p = .03$). These results suggest that engaging in physical activity may be protective against age-related declines in working memory and visuospatial skills, which may have important implications for maintaining independence and quality of life as we age.

The Effects of Past Financial Business Scandals on The Current Business World

Jasmyn Romo

In the early 2000s, many business scandals occurred that led to several changes throughout the business world. These scandals took place particularly in the accounting aspect of businesses. Large corporations such as WorldCom and Enron, began claiming more assets and less liabilities than what they really held. When the truth was revealed, these businesses came to a fall causing many people to lose their jobs and shareholders to lose their money. Due to the catastrophic chain reactions, the government put several new rules and regulations, such as the Sarbanes-Oxley Act, into place to put an end to accounting related business scandals. This study is an attempt to try to see the connection between past financial fraud and the effect on the current business world by focusing on the financial scandals of Enron and WorldCom. Past research on the effects of financial business scandals on the current business world has been lightly touched upon, but further examination and analyzation can conclude what exact financial scandals created specific negative effects. It is crucial that the cause and effect of financial fraud be clearly seen in order for business leaders to be able to take the proper steps to avoid the same mistakes. It is predicted that the connections between past financial scandals and the present-day business world will show a decrease in financial fraud and an increase in attempts to hold higher reputations of CPAs and

publicly traded companies.

The Relationship between Social Emotional Learning and Teacher Beliefs

Alexandra Sibrian

Social-Emotional Learning (SEL) has demonstrated to be critical in improving students' skills in social and emotional domains. SEL is the development of skills related to self-control, social awareness, and interpersonal skills. By improving these domains, it can help students manage and recognize emotions, establish positive relationships, and learn how to handle challenging situations. The purpose of this study is to examine the effects of teacher beliefs on the effectiveness of Social Emotional Learning. It is hypothesized that teachers that report a higher confidence in their ability to implement curriculum to reach SEL goals, will report higher levels of social-emotional skills in their classroom. Data was collected using a survey that evaluated teachers' perceptions of SEL and the overall climate of the classroom from credentialed TK-12 teachers in the United States. Findings can help educators and administrators decide what curriculum to implement, as well as decide what future training and support should be included at schools.

The Relationship Between Increased Incarceration and Recidivism Rates

Connor Skustad

"In 1960's United States politics crime became a spotlight issue. With growing crime rates the public was looking for a solution to make their communities safer. With the election of Richard Nixon in 1968 the war on crime was in full force and the solution became to convict more people. Later in the 1980's mandatory minimums became commonplace. With California's Three Strikes Law in 1994 the philosophy of solving crime through harsh punishments solidified as the dominant thought among Americans. As a result of this tough on crime initiative we have quadrupled our prison populations and put tremendous strain on our prison infrastructure. Here we explore whether a tough on crime philosophy is effective at reducing crime or if recidivism rates, or re-conviction rates of prisoners, don't support the reduction of crime. Recidivism rates point to the effectiveness of a punishment technique. Preliminary results point to harsher sentencing not necessarily correlated to a reduction in future crime."

Melatonin and its Effects: The Truth Behind this Popular Supplement

Lizeth Soto Garcia

Melatonin is a significant hormone secreted in the pineal gland of the body that is primarily known for regulating the sleep-wake cycle. This sleep-wake cycle is affected by two processes known as process C for circadian, working as an endogenous clock driving the cycle's rhythm, and process S for sleep, functioning through a homeostatic sleep behavior that keeps up with the sleep and wakefulness acquired. The short-term consumption of melatonin has been successful in treating disorders of many kinds such as jet lag and delayed sleep phase syndrome. Although, there are many after-effects that can occur with melatonin consumption, such as short-term depression, dizziness, headaches, and irritability. Easy accessibility to melatonin supplementation can lead to habit-forming side effects, resulting in dependency. The goal of this study is to inform users of the possible effects that can come with taking melatonin supplements, because although already a naturally produced hormone, melatonin can alter users' body cycles in the long run.

The Relationship between Childhood Poverty and

Academic Success, Parental Influence, and Health

Kendra Souza

If a child lives in poverty for a large portion of their development, then there will be a significant difference in certain aspects that relate to their overall quality of life in comparison to those children who did not spend a large portion of their developmental years living in poverty. This paper gives an introduction to the long-term effects of living in poverty as a child. After setting parameters that detail what poverty is, it will explore the relationship between poverty and several different factors that a child cannot control. The three specific factors it will examine are academic success, parental influence, and health. Lastly, it will give specified instruction for adults who interact with child in poverty on how to combat this epidemic in the United States.

Drowning in My Thoughts

David Toepfer

What is the difference between poetry and any other string of words? Any other written form has a denotation, that may share the same denotation as a poem, but the difference lies in the connotation of the poem that is separate from the denotation. Poetry has the power to change the meaning of words, of sentences, to change the way someone feels. Poetry brings something out of people that is hard to get out using other writing forms. Poetry tugs at your heartstrings, opens your mind, shows you new worlds, helps you understand your own. This is why I write. I want to write and reach as many people as I can so the ones who think like me can see that they are not alone in all of this, and so the ones that don't can hopefully understand my point of view and perspective, as well as of someone they may be close with. This is why I am writing and publishing a poetry book. My working title is Drowning in My Own Thoughts, and it will have about 150-200 poems and have 50+ illustrations. I will separate the poems into chapters with themes, the current themes are Depression, Love, Suicide and Rejection. Each chapter will have an intro to help the reader better understand what was going on in my life and my point of view when I was writing those specific poems. The final product will be a book in print, copyrighted and able to sell in stores, on my Instagram, and hopefully online.

Relationship Between Sleep and False Memory

Elizabeth Torres

Memories are not exact copies of reality. Instead, memories are reconstructions of reality that are influenced by many factors, such as prior knowledge, perceptions, and feelings. Sleep plays an important role in memory due to its influences on how the brain functions. Furthermore, sleep deprivation reduces the amount of information we can store in our working memory, impairs our ability to learn, and hinders our executive function. False memories are distorted memories or recollections of information and events that did not actually happen. Many studies have shown that sleep deprivation negatively affects cognition. However, the research on sleep deprivation affecting false memories is inconsistent. Therefore, I examined the relationship between sleep and false memories with a sample of 149 participants recruited from Amazon's Mechanical Turk. Sleep was measured as the amount of time spent sleeping the night before and on average and false memories was measured with the Deese-Roediger-McDermott (DRM) Task. In this false memory paradigm participants are shown lists of systematically related words but leave out the strongest connecting words within each list and after a short delay participants are asked to identify which words they were presented with. As hypothesized, there was a significant negative correlation between the amount of time spent sleeping the night before and the number of false memories calculated from the DRM Task. There was also a trend between participants' usual amount of time spent sleeping and the

number of false memories. These results potentially have important implications such as in court decisions. If the eyewitness of a crime is incorrect (i.e., relying upon a false memory), it could lead to the wrong person getting convicted of a crime. Gaining a better understanding of false memories will aid in determining our memory's susceptibility to false information and reliability in court cases.

Supporting Creative Lesson Planning Through Database Design

Matthew Trevena

Planning and preparing for lessons is a very time consuming task for teachers, especially for new teachers. My project focuses on making lesson planning and coordination between teachers easier and more consistent by enabling teachers to review lesson plans and materials from past years, along with being able to share lesson plans with other teachers. For my Capstone, I have created a database in MySQL, a database management system that stores and sorts data based on its relationships to other data, to store lesson plans and any information related to them, along with a web-based front end to interact with and view the data contained within the database via a secure, user friendly interface. This web-based front end has taken the form of a website that allows teachers and other verified users to search and filter the data from the database. By being able to share ideas in person and through the review of others' lesson plans, both new teachers and experienced teachers will be able to implement new ideas into their lessons and coordinate better with other classes. This database will be created with a small user base in mind and will be kept small in its first version, as I believe that this database will function best when used only by one school. However, feedback and future goals could lead to this database being applicable in a larger scope.

Informing the Need of Critical Thinking in Mathematics

Mary Vardeh

The purpose of this research is to examine if word choice and situational context affects students' perception of nonsensical word problems. The research question guiding this study is: Do students perceive nonsensical mathematics word problems differently, based on vocabulary and context? A nonsensical mathematics word problem is a problem where the information given cannot lead to a numerical answer. The research analyzes the performance of solving five mathematics word problems in primary school education, specifically sixth grade students. Each participant was given a worksheet with five problems. Four of the five problems were traditional word problems with numerical solutions. The fifth problem was either the shepherd problem or a different nonsensical problem with an updated context specifically created for this research. The idea for this research stems from Kurt Reusser research in 1986. That research was repeated in 2013 by Robert Kaplinsky. The importance of this research is to shed some light on if word choice and the context of mathematics problems affects students' ability to solve them.

Biophilia and Ecowellness: Examining Nature Connectedness

Jaqueline Villegas

This study will explore the cognitive, affective, and evolutionary spheres that were found in the subfield Ecopsychology. Also, a review of biophilia and an Ecowellness approach is accessible for ecopsychologists, artists and scientists. There is scientific evidence that nature can affect humans in these three spheres. Artists and scientists can achieve to create these experiences for viewers by implementing a "green" design in their projects. This study also informs that no differences exist between nature connectedness scores and those who come from urban, suburban, or rural backgrounds. The findings will

be adding to an interdisciplinary field known as Ecopsychology (Division 34). Biologist E.O. Wilson said biophilia is present in humans because it stems from an evolutionary need. Therefore, nature connectedness ties in the importance of nature, even if it is not valued aesthetically, cognitively, or through an evolutionary sphere. Humans go back to nature in times of personal and global crises (e.g. pandemics or poor mental health). Therefore, nature connection is a reliable method to examine to help us adapt, overcome, and thrive in our cognitive thoughts, evolutionary relationships, and definitions on what types of green spaces we are attracted to when we have or lack access to natural elements.

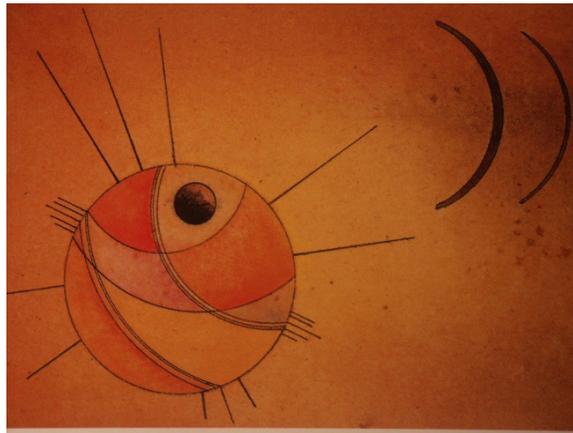
Capstone Research Poster Displays

Esmeralda Acatitla Velazquez- English
Joana Alfaro – Sociology
Reina Arthington - Philosophy
German Astorga – Physics
Dustin Babb - Biological Sciences
Catiel Ballard - History
Brittany Camara-Biol Science-Molecular, Cellular, & Microb
Breanna Cannon - Chemistry
Aurora Ceja – Sociology
Damien Conoly-Communication Stu-Public Comm & Media
Megan Dean - Subj Matter Prep ENGL
Ryan De Los Santos - Physics
Cierra Duke - Psychology
Jaryd Eskeets – Psychology
Catherine Fitzsimmons – Psychology
Timea Friesen - English - Subj Matter Prep ENGL
Colin Gage- English
Abram Galvez-Business Admin-MGT/Strategy/Entreprene
James Green-Biological Scien-Molecular, Cellular, & Microb
Roy Johns- Philosophy
Farhat Khairzadah - Nursing – Licensure
Rachel Klopfer - Sociology
Dennis Lawson – Economics
Lisa Lewis- Psychology
Elizabeth Luna – Psychology
Abdulla Mammadsoy -Mathematics
Marlen Martinez-Lopez - Computer Science
Lincoln Mattwandel - Political Science

Andrew Miller - Kinesiology
John Molthen – Chemistry
Saranjit Moundi - Business Administration - Finance
Diana Moya - Liberal Studies - Bilingual Cross Cult Spanish
Navjot Nahal - Exercise Science - Rehabilitation Science
Andrea Neeley - Liberal Studies - Biological Sciences
Carley Newbill - English
Juana Nieto Vazquez - Psychology
Georgina Orozco - Kinesiology - Exercise Science
Tawny Ortega -Psychology - Experimental Psychology
Lauren Previtali - Psychology - Experimental Psychology
Zackary Quinlan - Political Science
Lourdes Ramirez - Criminal Justice - Forensic Science
Marcus Ruddicks - Economics
Bradley Sanow - Criminal Justice - Forensic Science
Malika Shoker – English
Catarina Sousa - Criminal Justice – Law Enforcement
Sabrina Stephens – Psychology
Jair Torres - Biological Sciences
Alex Trujillo - Economics
Emma Van Hoogmoed – Computer Science
Guadalupe Villanueva- Kinesiology - Exercise Science
Rocci Vizzusi – Philosophy
Zephan Wood - Political Science
Kerry Young – Psychology

HONORS PROGRAM COMMUNITY STATEMENT

The Honors Program at CSU Stanislaus is a community of scholars bound together by vital principles of academic openness, integrity, and respect. Through focused study and practice involving exploration and discovery across a variety of disciplines, the Honors Program upholds these principles of scholarly engagement and provides students with the necessary foundations for further research and inquiry.



Our interdisciplinary curriculum is integral to this work and is intended to facilitate creative understanding of the irreducible complexities of contemporary life and knowledge. Personal and intellectual honesty and curiosity are essential to this process. So, too, is critical openness to difficult topics and respect for different perspectives, values and disciplines. The Honors Program aims to uphold these virtues in practice, in principle, and in community with one another.