SUMMER UNDERGRADUATE

RESEARCH PROGRAM

SURP 2017

SURP 2017

The Summer Undergraduate Research Program (SURP) at Vanguard University is a dynamic collaboration between students and faculty which facilitate the mastery of research methodologies through imitation and practice.

The benefits of engaging students in undergraduate research (UGR) include: increased student participation, increased retention, enhanced learning experiences, and a practical example of the integration of faith and learning. SURP is the embodiment of UGR which employs an intensive research immersion experience for students in the summer. Initially started in 2007 for students of Biology and Chemistry,

SURP expanded to include students from Sociology and Psychology in 2012 and 2016, respectively. Now as SURP celebrates its 10th anniversary in 2017, students from the Department of Liberal Studies have joined the UGR endeavor and effectively expanded the potential for interdisciplinary projects.

SCHEDULE

9:30am | Keynote Speaker: *Professor Jayme Smith, ABD*

10:30am | Poster Session: *SURP Fellows and Participants*

12:00pm | Awards Presentation: *Dr. Tara Sirvent*

KEYNOTE

SPEAKER

EXAMINING POTENTIAL TRIGGERS OF TOXIC PSEUDO-NITZSCHIA BLOOMS IN THE SOUTHERN CALIFORNIA BIGHT REGION

PROFESSOR JAYME SMITH, ABD

KEYNOTE SPEAKER

Phytoplankton serve a vital ecological role as the nutritional base of the marine food webs. While phytoplankton benefit higher trophic levels through carbon fixation, there are several phytoplankton species that can bloom and disrupt local ecosystems through the production of toxins or other negative effects; these events are termed harmful algal blooms (HABs). Pseudo-nitzschia is a diatom genus that contains several species capable of producing the neurotoxin domoic acid, and is arguably the biggest HAB issue in southern California. Pseudo-nitzschia has been documented along the coast of southern California since the 1930s, however, the first documentation of domoic acid in the region was in 2003. Domoic acid outbreaks have shown significant year-to-year variability in southern California waters, and toxic events were comparable in magnitude to some of the highest toxin concentrations recorded in literature. Observations have linked domoic acid in the diets of marine mammals and seabirds to mass mortality events in several years. Domoic acid has been detected in shellfish tissue every year since 2003, although the magnitude and geographic extent of the toxin has varied considerably by year and county coastline. Toxic Pseudo-nitzschia blooms exhibit strong seasonality, with toxin appearing primarily in the spring. Domoic acid events appear to have a strong relationship with upwelling and generally tend to coincide with cooler waters. Overall, while the general oceanographic factors that give rise to bloom events in the region are known, the subtle factors controlling spatial and interannual variability in bloom magnitude and toxicity remain elusive.

Ms. Jayme Smith is a VU alumna (Biology '10) and is preparing to defend her dissertation in USC's department of Marine and Environmental Biology.

(Biology, 2010)

DEPARTMENT OF

CHEMISTRY

RATE OF AMIDE BOND ROTATION

ALLEN CASTRO AND T. LORANCE PH.D

DEPARTMENT OF CHEMISTRY

The SURP experience has allowed me to be exposed to an area of chemistry that will be beneficial to my future. As I plan to enter a graduate program after graduation, SURP has taught me much about what research is all about and how to be successful.

(Chemistry, 2018)

Throughout this summer I will be researching the rate of amide bond rotation, which is associated with the dynamic exchange nuclear magnetic resonance (NMR). The NMR is a very slow type of spectroscopy, which gives an average molecular conformation, but if the conformational change is slow then the NMR will be able to pick up the different spectra of each individual conformation. This is evident in amide bonds which due to their partial double-bond shows hindered rotation, allowing us to determine the rate of rotation. In order to determine these rates we will be investigating a series of N,N-dimethylamides which may be affected by stereoelectronic factors. We will also be investigating how the solvent affects the rate of amide bond rotation and how the solvent will affect the energy barrier to rotation.

Keywords: amide, rotation, rate, N,N-dimethylamide, solvent, bond, stereoeltronic

DEPARTMENT OF

CHEMISTRY

RESEARCH SCALE FLOW REACTIONS SUITABLE FOR CONTINUOUS NMR MONITORING

MELISSA MILLER AND T. LORANCE, PH.D.

DEPARTMENT OF CHEMISTRY

This research strives to uncover mechanisms in chemical reactions through H^1-NMR (hydrogen nuclear magnetic resonance) using amberlyst 15 as an acid catalyst. Amberlyst is a sulfuric acid based resin which allows the use of strong acids in a reaction to be monitored by NMR. Mixtures containing strong acids are not monitored by NMR since they dissolve the internal tubing of the NMR. The reaction that was studied was the formation of benzaldehyde diacetate from benzaldehyde and trimethyl orthoformate. The single alpha hydrogen on the benzaldehyde was monitored as it disappeared and the alpha hydrogen formed on the benzaldehyde diacetate as it appeared. The benzaldehyde, trimethyl orthoformate, and amberlyst were added to a dram vial with a stir bar and samples were taken at thirty minute increments for three hours. This allowed for the reaction to be monitored while reacting to track its progress. This data will allow for the mechanism of the reaction to be unveiled.

SURP has allowed me to not only gain new knowledge and skills in the lab, but also gain real research experience and how my classroom knowledge can be applied in a research setting.

(Biochemistry, 2018)

DEPARTMENT OF

CHEMISTRY

THE RELATIONSHIP BETWEEN ACIDITY AND CHEMICAL SHIFT IN NON-AQUEOUS SOLVENTS

PARKER STANWAY AND T. LORANCE, PH.D.
DEPARTMENT OF CHEMISTRY

Summer research has allowed me to apply my knowledge from the classroom to new, real life questions and experiments.

(Chemistry, 2019)

This summer's research was to develop a reliable way to measure acidity in non-aqueous solvents. Current methods are electrochemistry and spectroscopy; these are limited to lower concentrations and differently colored acid and anion forms. A new way to measure acidity with less limitations would greatly benefit physical organic chemistry. A reliable relationship can be seen in the chemical shift of the hydroxyl and methyl. For the experiment, trifluoromethanesulfonic acid was used in both methanol and dimethyl sulfoxide. The best fit line for these experiments showed that the acid in previous experiments done with methansulfonic acid and methanol was not fully dissociated. By assuming that the trifluoromethanesulfonic acid is fully dissociated, the Ka for previous experiments done with methanesulfonic acid was calculated.

DEPARTMENT OF

CHEMISTRY

THE COMPARISON OF PHYTOCHEMICAL PROPERTIES IN FOUR TROPICAL BERRIES

ELSIE LOPEZ AND T. SIRVENT, PHD
DEPARTMENT OF CHEMISTRY

The four tropical berries that are being used in the study are *Euterpe oleracea* (Açai), *Serenoa repens* (commonly known as Saw palmetto), *Berberis microphylla* (also known as Maqui berry), *and Aristotelia chilensis* (calafate). These berries are known to contain high concentrations of anthocyanins. Anthocyanins are water-soluble phytochemicals with a deep red, purple, and blue pigments to plants and fruits, and belongs to the flavonoid group of phytochemicals. Phytochemicals are powerful chemicals that are synthesized by plants and have various biochemical and physiological properties. We will report on the optimization of anthocyanin extraction and HPLC analysis, the development of a meristem tissue culture method, and a comparative analysis of four different tropical berries. The analysis will also extend to comparing the quality of 3 different nutraceutical vendors of Açai and Maqui berry powder.

SURP is a wonderful program that allows students to learn abilities and knowledge in and outside the lab. It has helped me build my character by learning through my research, professors, mentors and friends.

(Biology, 2018)

DEPARTMENT OF

CHEMISTRY

THE EFFECTS TEMPERATURE HAS ON MICROBIAL QUANTITY AND DIVERSITY WITHIN SOIL

DESERHAE ARNETT, PRINCE ANDERSON, AND T. SIRVNET, PHD

DEPARTMENT OF CHEMISTRY

Your self-sacrificing devotion to your purpose in life and your unwavering faith will carry you through times of difficulty.

- Martin Luther King Jr.

(Biology, 2018)

The global climate is in constant question and seems to be fluctuating all over the world. At the increasing rate of the global population land quality and quantity may be in dire jeopardy. This issue would significantly affect agricultural supply and demand. Microbes within the soil help plants to fixate the organic matter within the soil to use during their germination process. This experiment consisted of a team traveling up the northern California coastline to extract adequate soil samples. Five soil samples were collected of which one was collected as a gradient sample. Each sample was immediately labeled and stored in three different temperatures, ambient, 0 and -18 degrees Celsius. These samples were extracted for eDNA utilizing an environmental DNA extraction kit from Omega BioTek™. eDNA was visualized and quantified using Lonza's Falsh Gel technology. PCR was performed with several primers specific to certain taxa including: 16S (prokaryotic), 18S (eukaryotic), COI (invertebrate), TRN (plant), and ITSR (fungi). Quantitative analysis will be presented to indicate the level of biodiversity within the soil along the Southern California coastline.

DEPARTMENT OF

CHEMISTRY

CHARACTERIZATION OF IMPORTANT SECONDARY METABOLITES IN THE PHYTOMEDICINAL EUTERPE OLERACEA

CARRIE M. RENES AND T. SIRVENT, PHD
DEPARTMENT OF BIOCHEMISTRY

Euterpe oleracea, also known as the Açaí palm, is a species of palm that is native to tropical South and Central America. Açaí is used as a medicinal plant by the indigenous and local people. The levels of phytosterols in three different preparations of Açaí products (juice, frozen pulp, and nutraceutical supplements) were extracted using ethyl acetate, injected onto the High Performance Liquid Chromatograph (HPLC), and subsequently analyzed. Phytosterols are structurally similar to cholesterol and can be found in all plant foods. The phytosterols in Açaí products are biologically active and display various phytomedicinal properties ranging from helping with allergies and reducing cholesterol to preventing cancer and strokes. Progress will be reported on the optimization of meristem culture of E. oleracea to maximize the production of phytosterols.

Participating in this program has allowed me to grow as a scientist and as a person. I have learned how to use many new machines, how to troubleshoot any problems I come across, and to be confident in my abilities and knowledge

(Biology, 2017)

DEPARTMENT OF

BIOLOGY

GENETIC VARIATION OF DIABETES TYPE 2 IN THE HISPANIC POPULATION

ERIK OVERBY AND I. CALLEJA-MACIAS, PH.D.
DEPARTMENT OF BIOLOGY

The SURP was instrumental in teaching me how to utilize the skills that I have learned in my undergrad, also, Cf NOS HoW He PArTi

(Kinesiology, 2017)

Type two diabetes is increasingly prevalent in the United States due to many factors and causes. Certain ethnic and cultural groups are much more likely to be diagnosed with type II diabetes than others. There is also signs of a genetic pre-disposition towards type II diabetes in some populations. We will be looking at the T-786C polymorphism of eNos which can be responsible for hypertension and decreased HDL content (Both hypertension and low HDL can lead to Type II diabetes). DNA was collected from the buccal cells of 3 groups; non-diabetic white, non-diabetic Hispanic, and diabetic Hispanic. Once the cells were collected the DNA was extracted and run through PCR based on the specific T-786C polymorphism. After noting the prevalence of the T-786C polymorphism in separate populations we ran it through a digestion and lysed the original 180 bp nucleotide into a 40 bp nucleotide and a 140bp nucleotide. The expression of the T-786C polymorphism is directly associated with risk factors for type II diabetes. Therefore, we will establish whether or not this is a factor that results in a higher prevalence of type II diabetes in Hispanic populations compared to Caucasian populations.

DEPARTMENT OF

BIOLOGY

GENETIC VARIATION OF DIABETES TYPE 2 IN THE HISPANIC POPULATION

ITZEL RAMIREZ AND I. CALLEJA-MACIAS, PH.D.

DEPARTMENT OF BIOLOGY

The purpose of our research is to identify genetic variants among the Hispanic population for Type 2 diabetes mellitus (T2DM). The Hispanic population has been diagnosed with a higher risk for Type 2 Diabetes than most ethnicities. To achieve this, we will be taking a sample of cheek cells from patients that have no T2DM and for the ones who do have the disease. The methodology that will be used is Polymerase chain reaction (PCR) to amplify copies of specific SNPs (Single nucleotide polymorphism) and identify them through enzymatic digestion.

Being in SURP has been fun and an honor to be able to work side by side with Dr. Calleja's and what makes it even more special is that is not only about working but learning together and getting to know each other through the project."

(Biology, 2018)

DEPARTMENT OF

BIOLOGY

THE EXPRESSION OF E-CADHERIN IN DROSOPHILA MELANOGASTER BRAIN

TIFFANY TADROS AND S. FUNG, PH.D.
DEPARTMENT OF BIOLOGY

Research has given me the opportunity to not only grow immensely as a student and biologist, but has also allowed me to make great friends with which I'll share lasting memories with.

(Biology, 2019)

Cadherin is a protein expressed throughout the body and is part of a superfamily that provides functions for cell-cell adhesion and cell signaling. E-cadherin is expressed in epithelial tissues of Drosophila Melanogaster and mammals. Lack of E-cadherin causes metastasis of various cancers and various neurological disorder such as bipolar and autism. Drosophila Melanogaster is the model organism being used to conduct the experiment because they have a fast life cycle, have many offspring, and their genetics are easy to manipulate. By using Western blot analysis, D. melanogaster E-cadherin has shown to express throughout larval and pupal development. In D. melanogaster larvae, E-cadherin is expressed in the neuroblast (neural stem cells) with the surrounding glial cells. The purpose of this experiment is to identify the location of E-cadherin during the pupal stages of brain development by using immunohistochemistry. The connections between E-cadherin in the brain and E-cadherin in the gastrointestinal system will also be investigated with genetic analysis and immunohistochemistry.

DEPARTMENT OF

BIOLOGY

E-CADHERIN IN LARVAL BRAIN DEVELOPMENT

ASTRID VIERA AND S. FUNG, PH.D.
DEPARTMENT OF BIOLOGY

E-Cadherin is an adhesion molecule and a tumor suppressing gene. Mutation in E-cadherin promotes metastasis and neurological disorders. Drosophila Melanogaster is the chosen model organism because they share similar pathways with humans. Ajuba LIM is a crucial regulator protein participating in the regulation of cell adhesion, mitosis, DNA damage, differentiation, proliferation, and gene transcription. The purpose of this research is to confirm the interaction between E-cadherin and Ajuba LIM using co-immunoprecipitation and western blot.

I had the most amazing time during SURP! I was able to gain a lot of experience in research and also meet great new people!

(Biology, 2019)

DEPARTMENT OF

BIOLOGY

THE DEVELOPMENT OF A BRASSICA OLERACEA ISOLINE TO INDUCE HIGH PRODUCTION OF SULPHORAPHANE AND GLUCORAPHANINE

JOHN MCCARTHY AND M. HOPKINS, D.C.
DEPARTMENT OF BIOLOGY

As my education has progressed, I have been offered new opportunities to further my knowledge and understanding of the natural world. It has, however, been limited largely to the confines of the books I read. SURP has enabled me to progress past that and allowed me to think outside the box and find unique avenues for approaching different problems.

(Biology, 2019)

The goal of this experiment was to develop and manage a cruciform population specifically one of the cultivars of broccoli that produces high levels of sulforaphane and glucoraphanin a plant molecular product that has been shown to have many health benefits. Including an anti-inflammatory effect, and management of diabetes.

To this end seeds of five cultivars were obtained from a local seed supply store. The seeds were then sterilized in a bleach and water solution. The seeds were then transferred under sterile conditions to a petri dishes filled with a sterilized water agar. These seeds were allowed to sprout for 7 days before being transferred to prepared and sterilized magenta boxes containing a NLN agar mixture. These plants were allowed to develop until greater than 5 buds were observed the plant was then removed and buds cut in a sterile environment and placed into a new magenta box to continue to grow into 5 new plants. This was repeated while analysis was performed using high pressure liquid chromatography evaluate the ability of individual sulforaphane and glucoraphanin content isolating to the plants that were richest in sulforaphane.

The next step in the analysis is to transfer the identified plant and move into a green house and soil environment and monitor for overall plant heath with long term goal of moving to field trials. Additionally genetics screening should be done of the identified plant in order to determine what genetic anomaly's played a role in the increase of the sulforaphane and glucoraphanin.

DEPARTMENT OF

BIOLOGY

DETECTION OF THE VARYING CONCENTRATIONS OF SULFORAPHANE DUE TO DIFFERING METHODS OF PREPARATION IN BROCCOLI

CORBIN SPARKS AND M. HOPKINS, D.C.
DEPARTMENT OF BIOLOGY

Studies have shown that the biochemical sulforaphane has been implicated for a number of medicinal uses. It has been used in treatment of Huntington's disease, Alzheimer's, muscular dystrophy, autism, several kinds of cancer, and inflammation. Sulforaphane is present in largest concentrations in broccoli sprouts. However, it is present in lower concentrations in adult broccoli. Sulforaphane is produced when the cell is lysed, often by chewing or crushing. Glucoraphanin, the glycosylated form of sulforaphane, and the form used by the cell for storage, is exposed to the enzyme myrosinase, which resides in the extracellular matrix in a healthy broccoli plant. An intermediate is formed which naturally degrades into sulforaphane. However, if the enzyme epithiospecifier protein (ESP) is present, it will guide the intermediate to form sulforaphane nitrile, which is medically useless. It should be noted that ESP degrades at 60°C, while sulforaphane will not form past 70°C. The purpose of this experiment was to test different methods of common broccoli preparation. The methods used were boiling, grilling, steaming, and lightly bathing the broccoli in a water bath of 65°C.

One of my favorite things about being is SURP this year is how independent we are allowed to be. It really has helped stretch me as a student and a person and has allowed me to learn how to innovate, create, and think outside the box.

(Biology, 2018)

DEPARTMENT OF

BIOLOGY

ACYLATED HOMOSERINE LACTONE DETECTION AMONG THE INTERACTIONS OF ARTHROBOTRYS OLIGOSPORA AND CAENORHABDITIS ELEGANS

DESTANY ROCHA AND R. OCHOA, PHD
DEPARTMENT OF BIOLOGY

SURP program has been an amazing experience that has taught me research skills and teamwork.

(Biology, 2019)

Acylated homoserine lactones (AHLs) are quorum-sensing signals produced by many gram-negative species of bacteria that aid in cell-cell communication. The nematode-trapping Arthrobotrys oligospora fungus contains the gene for the AHL molecule, however, expression of the gene has not been confirmed. Caenorhabditis elegans are parasitic nematodes that feed on bacteria and are attracted to AHL that is synthesized in bacteria such as Pseudomonas aeruginosa. It is hypothesized that A. oligopsora traps and kills C. elegans with the aid of AHL. β-galactosidase assay will be used as an indicator of AHL with the aid of the biosensor bacterial strain *Agrobacterium tumefaciens* NTL4. In the presence of AHL, NTL4 will produce β-galactosidase which will hydrolyze X-Gal and will result in a blue precipitate. In addition, chemotaxis assays will be conducted to identify other C. elegans attractants. This study will facilitate further research on providing an eco-friendly pesticide.

DEPARTMENT OF

BIOLOGY

THE ROLE OF ACYLATED HOMOSERINE LACTONE AMONG PREDATOR- PREY INTERACTIONS OF ARTHROBOTRYS OLIGOSPORA AND CAENORHABDITIS ELEGANS

MARIO JAUREGUI AND R. OCHOA, PHD
DEPARTMENT OF BIOLOGY

The necessity for biological control agents has increased over the past decade. Many pests become resistant to drugs and chemicals, pesticides are harming the environment and the anxiety of genetically- modified pest-resistant crops is a problem (Mankau, 1880). Acylated Homoserine Lactone (AHL) is essential for bacterial cell to cell communication. AHL is part of the Lux –R family of enzymes used to transcribe and translate bacterial pheromones (Tsai, Winans, 2011). Studies have shown the fungi, Arthrobotrys oligospora has a gene in its genome. The parasitic nematode, *Caenorhabditis elegans*, has been shown to move towards synthetic AHLs. Therefore, we hypothesize AHL acts as an attractant leading *C. elegans* to *A. oligospora*, where the fungus traps and kills the nematodes. The entrapment of *C. elegans* has been observed for many years; however, the mechanism is not understood. A biosensor will be used detect AHL production in various fungus- nematode interactions.

From this research experience, I have learned that patience is a virtue because growing bacteria takes time and effort to produce healthy and uncontaminated supply. I can see myself performing microbial research to find different natural biological control agents that are safe for the environment.

(Biology, 2018)

DEPARTMENT OF

BIOLOGY

GENETIC VARIATION OF DIABETES TYPE 2 IN THE HISPANIC POPULATION

DEAN LENHART AND I. CALLEJA-MACIAS, PH.D.
DEPARTMENT OF BIOLOGY

SURP has helped me discover my love of research and to help me expand my horizons in this dense chasm of scientific knowledge. It has also taught me that if you ain't first, you're last. Shake n' bake.

(Biology, 2018)

This study looks at the genetic predisposition to type II diabetes in Hispanic populations in the US. DNA extraction techniques will be used to acquire DNA from cheek cells given by participants and then certain genes will be duplicated using DNA primers and the polymerase chain reaction process. Once the DNA is prepared, it will be sequenced and the coding in the genes compared between Hispanics with and without diabetes.

DEPARTMENT OF

PSYCHOLOGY

METHAMPHETAMINE-ASSOCIATED MEMORIES INDEPENDENTLY GO THROUGH RECONSOLIDATION RENDERING THE DISRUPTIVE EFFECTS OF MEMANTINE ON DRUG-PAIRED MEMORIES TO BE SELECTIVE.

RHYS CARPENTER AND M. HANNA, PH.D
DEPARTMENT OF PSYCHOLOGY

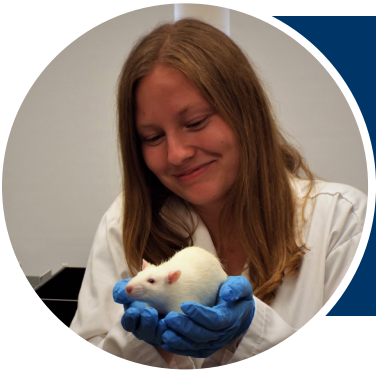
Methamphetamine-associated memories independently go through reconsolidation rendering the disruptive effects of memantine on drug-paired memories to be selective. Drug associated memories often contribute to the high relapse rates in recovering addicts. Past research from our lab has shown that rats injected with an NMDA receptor antagonist, memantine, after reactivation to a methamphetamine-paired compartment show no preference for that compartment. In this study we aim to determine the specificity of memantine in interfering with the reconsolidation of multiple methamphetamine-associated cues. We tested if the administration of memantine after the reactivation of a methamphetamine paired compartment would disrupt the reconsolidation of a second distinct methamphetamine-paired memory. Rats, which originally showed no preference for any chamber, showed a preference to the two compartments paired with methamphetamine. Rats injected with vehicle exhibited preference for the two methamphetamine-paired compartments whereas rats injected with memantine showed no preference for the reactivated chamber but preference for the non-reactivated chamber. We also show that the effects of memantine on interfering with the reconsolidation of drug-associated cues lasts for at least two weeks.

Learn for the sake of learning. Sometimes it can be difficult to learn new and different ways of thinking but everything you learn compliments your previous ways of thinking and can lead to new and exciting ideas.

(Psychology, 2017)

DEPARTMENT OF

PSYCHOLOGY



REACTIVATION OF AN OLFACTORY CUE ASSOCIATED WITH METHAMPHETAMINE ADMINISTRATION RENDERS DRUG-ASSOCIATED MEMORIES LIABLE TO DISRUPTION THROUGH THE NMDA RECEPTOR ANTAGONIST MEMANTINE

MEGAN JESKE AND M. HANNA, PH.D
DEPARTMENT OF PSYCHOLOGY

SURP was great preparation for future research endeavors and I enjoyed working in such a lighthearted environment alongside my team.

(Psychology, 2017)

A major contributing factor to drug relapse is exposure to environmental stimuli that have been previously associated with drug administration. Exposure to such cues evokes memories of the effects of the drug and induces drug-seeking behavior. While previous research has shown that the NMDA receptor is necessary for reconsolidation and that reactivation of drug-cues are needed for memantine, an NMDA antagonist, to interference with reconsolidation, it still remains unclear whether reactivating a single sensory modality is sufficient to render a drug-associated memory liable to disruption. Moreover, the molecular mechanisms of reconsolidation still remain uncertain. Using the conditioned place paradigm, we demonstrated that reactivation of one modality of a methamphetamine associated memory, an olfactory cue, was sufficient for memantine to eliminate drug-seeking behavior. In addition, as memory stabilization requires the insertion of AMPA receptors we will be testing whether rats treated with memantine exhibited lower levels of expression of the GluR1 and GluR2 subunits of the AMPA receptor in the basolateral amygdala.

DEPARTMENT OF

PSYCHOLOGY

METHAMPHETAMINE ASSOCIATED MEMORIES INDEPENDENTLY AND SELECTIVELY GO THROUGH RECONSOLIDATION

CARLA KEITH AND M. HANNA, PH.D
DEPARTMENT OF PSYCHOLOGY

Methamphetamine associated memories independently and selectively go through reconsolidation. High relapse rates in users can be due to the cravings caused by drug associated memories. When presented with drug cues, a user can be trigged into relapse. Previous studies from our lab have shown the that the NMDA receptor is critical in the reconsolidation of methamphetamine associated memories and that interference of reconsolidation by pharmaceutical agents requires the reactivation, or triggering, of a memory. The aim of this current study was to test if injection of memantine, an NMDA receptor non-competitive antagonist, after presentation to a methamphetamine associated chamber would also disrupt preference for a similar, though distinct, methamphetamine associated chamber. It was found that administration of memantine (10mg/kg) specifically disrupted drug seeking behavior for only the chamber in which the memory was triggered while preserving the preference for the methamphetamine-associated chamber in which the memory was not reactivated.

The more I study the intricacies of the brain, the more I see God's hand and purpose for our life.

(Psychology, 2018)

DEPARTMENT OF

LIBERAL STUDIES

MEXICAN ORIGIN YOUTH AND AFTER SCHOOL ACTIVITIES: GENDER INFLUENCES

EMILY ANDRADE AND A. LIN, PHD

DEPARTMENT OF LIBERAL STUDIES

I am thankful to have been given the opportunity to participate in SURP 2017. Through this program, I was able to learn more about the process of developing a research project. It was also through SURP that I was able to make some extraordinary friends.

(Sociology, 2019)

The focus of this study is to understand how culture affects gender expectations in Mexican origin households and adolescent's participation in after school activities. The reason this is worth studying is that the engagement of Mexican Origin youth in after school activities can have long term positive affects on their education. This study will extend existing understanding of how culture influences gender expectations and affects the result of an adolescent participating in after school activities. Thus, the focus of my study will contribute to the phenomenon of gender expectations with Mexican origin students. The primary research question of this study is: How does a Mexican origin parent's culture (traditions, history, language, beliefs, and values) influence gender expectations when it comes to their children and their participation in after school activities. The data collection is based on a qualitative study on 34 Arizona families. In conclusion, the study is to understand how culture affects Mexican origin parents and their adolescent's participation in after school activities.

DEPARTMENT OF

LIBERAL STUDIES

LATINO YOUTH ORGANIZED ACTIVITIES

RIKKI WOODEN AND A. LIN, PHD

DEPARTMENT OF LIBERAL STUDIES

An organized activity is a structured group setting that allows adolescents to participate in sports, clubs, mentoring, and arts. Project Reach, conducted by Dr. Lin and his team, focuses on the lives of Mexican-Origin youth in Arizona, and whether they participate in activities. Quality afterschool programs can benefit the youth and their families. Afterschool programs can provide a safe environment for children of working parents, raise academic performance, and promote a healthy lifestyle. Therefore, my study will show people how important organized activities are and to understand why adolescents chose to go to activities or not. My main objective is to see if there is a gap between upper-middle, lower-middle class and working/poor class in access and knowledge to organized activities. I'm coding money, transportation, and knowledge to see the difference of access to activities between each socioeconomic class.

SURP has taught me how to conduct research and I've made some great friends in the process.

(English, 2019)

DEPARTMENT OF

SOCIOLOGY

FRAGMENTED ENVIRONMENT AMONG THE 1.5 GENERATION CHRISTIAN MILLENNIALS

TAMARA SZULC, SARAH IN AND H. PARK, PHD

DEPARTMENT OF SOCIOLOGY

The purpose of this research is to explore how millennials of different immigration statuses and varying degrees of social expectations experience American adaptation. Our research strives to identify the types of contradictions that 1.5 and second generation immigrants go through, due to their fragmented environment. This cross-sectional study will take an exploratory approach, utilizing in-depth interview with a sample of 40 respondents. Chi-square test of independent and odds ratio will be utilized to explore the relationship between variables. As a result of utilizing qualitative approach, the impact of this method provides us with a deep understanding of variant young adults and their perceptions. The fragmented environment entails with identity crisis, which the likelihood of affecting 1.5 and second generation immigrants to downwardly assimilate is induced. Through this research study, we hope to find a resolution to serve and guide the 1.5 and second generation immigrant students in Vanguard University of Southern California, with a great measure of effect and efficiency.

I learned so much about immigration with respect to race and ethnicity, and social theory construction. I appreciate all the skills I learned from being in this program and I'm glad to have been part of this group of researchers.

(Tamara Szulc, Sociology, 2019)

My experience with SURP exceeded my expectation. It's been an honor and privilege to work closely with professors and students, and share knowledge with each other.

(Sarah In, Sociology, 2019)

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