

**Giles T. Brown Student Project
and Research Symposium**



April 13, 2018

Thank you

Deans Tara Giblin and Michael Sutliff conceived of this wonderful opportunity for our students in early 2016, and we thank them for guiding us all through to see it to fruition over the last two years.

Committee chairs Hannah Kang and Rachel Ridnor took the lead on many of the logistics for today.

Other faculty & staff involved in the planning of the research symposium included Kelli Elliott, Gregory Russell, Jerome Fang, Erik Bender, Amy Hellman, Duy Pham, Robert Ellis, Mary Blasius, Karen Baker, Jon Mochizuki, Ulrike Green, Isabel Archuleta, and Arjun Nair.

We would also like to thank Kevin Ballinger, Vice President of Instruction, for supporting the research symposium and for volunteering many of today's awards.

Dennis Harkins, Orange Coast College President, provides leadership and the campus climate that fosters innovative learning for programs like this.

Finally, we extend a huge thank you to the students and faculty sponsors who made today possible! Congratulations on your work and we appreciate you sharing it with the campus community.

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All Research Symposium events are in or near MBCC 162-164

10:30am-12:00pm

Posters and other works open for viewing on the walkway in front of MBCC 162-164 with presenters available for questions.

Posters

Emily May & Melissa May, *Effects of Animal Therapy on Stress Levels*

Faculty sponsor: Hannah Kang

Jacob Mendez, Sara Nomberg, David Vo, and Chris Wright, *How Can Culture and Social Media Use Relate to Self Esteem, Loneliness, and Depression in College Students?*

Faculty sponsors: Masako Ura & Lien Pham

Hanna Nguyen and Stephanie Hernandez, *Music-induced Mood and Memory Performance*

Faculty sponsor: Hannah Kang

Adolfo Alan Garduno, Alondra Chavez, Trang Troung, Khiara Bankston, James Kerrigan, Oceana Russo, and Jolly Tardos, *How Social Media Use Influenced by Self-Esteem and Underlying Internal Factors Affects Social Relationships and Psychological Health in College Students*

Faculty sponsors: Lien Pham, Ura Masako

Daniel Caballero, *The Effects of Urban Development on California Scrub Jay Populations*

Faculty sponsor: Kelli Elliott

Mahdokht Hamidian, *Fruit Preservation Cream*

Faculty sponsor: Amy Hellman

Abstracts for posters and other works can be found on page 8.

12:00-1:00pm

Lunch

Students, faculty sponsors and guests welcome

1:30-3:30pm

Oral Presentations

Concurrent sessions. Each oral presentation has a 20-minute time allotment: 15 minutes for the presentation, and 5 for questions.

Session 1: 1:30- 2:30 pm

1 - A MBCC 162

Giang Nguyen, *Challenges of Women of Color In STEM When Transferring from Community College to 4-year University*
Faculty sponsor: Rachel Ridnor

Nancy Nguyen, *Vietnamese Migration: Educational Experiences*
Faculty sponsor: Rachel Ridnor

Jonathan A. Stockman, *Accommodating the Baby-boomer Generation*
Faculty sponsors: Rachel Ridnor, Chris Quinn

1 - B MBCC 163

Kylie Conrad, *Cadavers in Science*
Faculty sponsor: Amy Hellman

Elyse Mallonee, *Native American History in the 20th and 21st Centuries*
Faculty sponsor: Ulrike Green

Teven Ong and Daniel Reyna, *Orange Coast College Recycling Center Mobile App*
Faculty sponsor: Michael Paulding

1 - C MBCC 164

Daniel Soroudi, *Modern Relationship Between Alcohol Consumption of Peers and the Self*
Faculty sponsor: Anna Hanlon

Jocelyn Rodriguez, *The Evolution of Anxiety*
Faculty sponsor: Jan Goerissen

Austin Grande, *Questioning Teaching Methods*
Faculty sponsor: Richard Vulich

Session 2: 2:45-3:25pm

2 – A MBCC 162

Abby Dunham, *#MeToo Narratives: Making Sense of Social Movements in the Digital Age*
Faculty sponsor: Edson Cruz

Lyvia Yoho, *Media and its Selective Reporting of Crime*
Faculty sponsor: Ulrike Green

2 – B MBCC 163

Joseph Magdaleno III, *Deactivation of Radeonucleotides using Activated Water - And Other Applications*
Faculty sponsor: Angelo Esposito

Jonathan Sorensen, *Aquaponics as a preferential alternative to traditional farming methods in regards to plant growth*
Faculty sponsor: Robert Ellis

2 – C MBCC 164

Kha Nguyen, Aryan Nikgozar, and Shaun Quinn, *Cycloid – An Analysis of its Special Property*

Faculty sponsor: Douglas Lloyd, Angelo Esposito

Brittney Maine, *CRISPR and Badiou: Ethics in Science*

Faculty sponsor: Erik Rangno

3:30-4:30pm

Keynote Event, MBCC 162

Three OCC students, Jocelyn Leon, Daniel Ramsey, and Vincent Tran received fellowships to perform research last summer as part of Cal State Fullerton's Project RAISE.

Join us as they discuss their experience, and hear from mentors from Project RAISE as well.

To read more about this wonderful opportunity and to read more about Jocelyn, Daniel, and Vincent's research, see page 21.

4:30-5:00pm

Presentation of awards, MBCC 162

Abstracts (listed alphabetically by student)

Daniel Caballero. *The Effects of Urban Development on California Scrub Jay Populations.* Building new homes on undeveloped land forces wildlife out of their own homes. The chain reaction of disrupting wildlife communities that can occur after loss of habitat may not be a big concern to urban developers, but it is something that can negatively affect humans through decreased food productivity and soil stabilization. Many species of birds, like the American crow, have adapted well to urbanization but that is not the case for countless other species. The California scrub-jay is a very important member of oak woodland habitats as they distribute the acorn seeds that become oak trees that provide food and shelter for other inhabitants. In order to understand the effect of urbanization on scrub-jay populations, four scrub-jay habitats around Orange County with varying intensity and type of urbanization were surveyed. At each of these sites, scrub-jay observations were counted for fifteen-minute time periods at the peak of their activity which begins approximately two hours after sunrise. Initial results show sites with less habitat loss due to development proved to have larger populations. However, it was evident that human presence did not hinder the scrub-jays' ability to live in the area. In conclusion, humans and scrub-jays, as well as other wildlife, have shown to be able to share a habitat without either suffering consequences as long as humans learn to not overstep their boundaries, namely, creating a sea of concrete and asphalt rather than building homes assimilated into the natural habitat.

Kylie Conrad. *Cadavers in Science.* Cadavers are science's unmoving heroes. Without them, understanding of the human body would be severely lacking knowledge and medicine would be on ancient terms, chemistry and biology would be lacking a central application, and psychology would have little backbone to begin building theories from. In this study, the history of cadavers will be acknowledged, as well as the pairing controversies that shadow cadavers throughout their uses. In addition to discussing the uses of cadavers in both old and recent times, the crimes of anatomy throughout history will be faced and discussed, as well as common uses of cadavers in research, education, and medicine. The main topic of focus will be developing attendee's knowledge of cadavers in education. Orange Coast College is one of the only community colleges with an Advanced Anatomy prosection course and a plastination lab. Both the plastination lab and the origin of the cadavers on campus will be discussed,

furthering attendee's knowledge of OCC's spectacular course availability. Interviews with professors and students that have participated in the prosection course will offer insight into how cadaver use helps with understanding the physical processes of human bodies. Cadavers have and will continue to teach about the human body, developing knowledge of human lives and how we can preserve them.

Abby Dunham. *#MeToo Narratives: Making Sense of Social Movements in the Digital Age.* Movements condemning sexual assault and harassment have stepped into the spotlight at full force since the allegations against Harvey Weinstein in 2017. Where do we draw the line? Who do we believe? What stories are told and heard? This study explores the ways sexual misconduct is talked about and understood in the wake of #MeToo. Through an analysis of 8 Reddit forum discussions I examined current conversations surrounding sexual harassment and assault allegations. I then conducted 6 interviews of 3 cisgender women, 2 cisgender men, and 1 transgender man. All were Orange Coast College students between 18 and 29 years of age to get a deeper understanding of individual perspectives. In analyzing relevant literature, the forum discussions, and student interviews I found that persons engaged in this discussions relied upon a broad definition of sexual misconduct and perceived a separation between the experiences of elite celebrities and the actuality of harassment and assault in their lives. People's ability to make sense of the movement depended on their own relatability to it. This study contributes to a greater understanding of the intersection between the personal and institutional levels of a contemporary social movement in the digital age.

Adolfo Alan Garduno, Alondra Chavez, Trang Troung, Khiara Bankston, James Kerrigan, Oceana Russo, Jolly Tardos. *How Social Media Use Influenced by Self-Esteem and Underlying Internal Factors Affects Social Relationships and Psychological Health in College Students.* Previous research revealed the negative impacts of social media on social relations and psychological well-being (e.g., Caplan, 2007; Chia-Chen, 2016; Sherrell & Lambie, 2016). However, little research reported its impacts on community college students. The current study aimed to further investigate the relationships between social media use and the social relations of community college students, as well as its connection to students' mental well-being. Two hundred and sixty-four students from Orange Coast College completed an online survey that asked a variety of questions about students' social media use, sleep issues, social relationships, depression, loneliness, and self-esteem. Results indicated there was a

negative relationship between social media use and self-esteem, $p < .05$. Although there was no significant correlation between social media use and social relations, we found that social relation was negatively correlated with loneliness, depression, and sleep qualities, $p < .05$. Furthermore, a regression analysis revealed that loneliness, depression, and attitudes toward social media all contributed to explain 44% of the variability of self-esteem. It is interesting to note that social media was not directly correlated with social relations; however, social media use can lead to lower self-esteem, which can affect social relations negatively. Thus, the current research identified some potential negative impacts of social media use as well as other psychological factors on the users' self-esteem. In the future, it is important to determine how those variables are related to each other in depth and understand why social media use can be detrimental by using a qualitative method. It will help us to promote and raise an awareness of healthy ways of using social media.

Austin Grande. *Questioning Teaching Methods.* My project is comparing different techniques of teaching a lesson and how well students respond to it; this is important to fully understand if we are teaching the best way we can. To test this out I choose three methods a teacher using a PowerPoint, a video recording of the lesson, and teaching the student how to find the information without directly giving it to them, with respected population sizes of around thirty students. No current research like this has been conducted which is why Dr Vulich and I have gone through great efforts to minimize our bias. The students will sit through a lesson plan about a historic battle, and then be given a test where they will free hand answer five questions. Following the test, the students will fill out a self-evaluation form to help create data to see which students benefited most from different techniques. All students will be given a piece of paper to take notes, the same quiz, and self-evaluation. The answers will be typed, and then be graded by Dr Vulich, another academic, and myself. A mean of those scores will be taken and with the help of Professor A-P I will calculate which method has the overall best outcome of success for most students. Since this project is still in its testing phase and will not be completed until later I will be presenting my findings so far and where we can see this project going into the future.

Mahdokht Hamidian. *Fruit Preservation Cream.* Every year, U.S. supermarkets experience economic loss due to losing roughly ten percent of their produce to spoilage during transportation and storage. Once fruit is harvested, any natural resistance to spoiling micro-organisms is lost. Currently, domestic and international produce distributors utilize costly methods such as refrigeration

and vacuum cooling to reduce the rate of spoilage. As an inexpensive alternative, the author of this study has developed a natural product that can easily be applied to help fruit maintain its natural freshness from the time of harvest until consumption. This Fruit Preservation Cream is a nontoxic creamy substance that can be applied to fruit in a thin layer coating to slow the spoilage process. This study involved evaluating the spoilage rate of apples for a time period of up to 6 months. Taste, smell, and overall fruit appearance were examined for apples covered with the preservation cream and compared to a control group of apples without the cream. Experiments took place in a controlled laboratory environment, in a home kitchen environment, and an outdoor California backyard setting. The results of this study showed that the Fruit Preservation Cream significantly reduced the rate of spoilage of apples in the three environments tested. This suggests the Fruit Preservation Cream to be a viable inexpensive and non-toxic product to preserve the natural freshness of fruit, thereby increasing its shelf life. This product has the potential to greatly decrease the rate of produce spoilage, thereby reducing costs to produce distributors, supermarkets and consumers.

Joseph Magdaleno III. *Deactivation of Radionucleotides using Activated Water - And Other Applications.* In wake of the Fukushima reactor leakage in 2011, the necessity of proper decontamination of radioactive material had become paramount. Unfortunately, all procedures for radioactive waste amount to containment, burial in geological sites, and recycling with no true disposal method. Recent research has shown that there is a substance capable of deactivating radionucleotides: water produced by high-pressure treatment emits energy in the IR-THz range and activates solids, liquids, and gases. This study compiles research articles of the compelling properties of this Minimal Catalyst (MICA) water for use in nuclear decontamination, as well as other applications of its properties. In Fukushima Japan, 50 km from the reactor site, contaminated soil samples treated with MICA water were measured to have reduced levels of radioactivity by 60% after 42 hours with reduction persisting for 6 months (Sugihara, 2013). Another property of this MICA water is reduction of CO₂ levels by 27% and NO_x levels by 40% from automobile exhaust using a MICA-treated device (Sugihara, 2009). Similarly, nitrogen excited by MICA-treated polyethylene film keeps vegetables, mushrooms, fruit, and meat fresh by protection from oxidation (Sugihara, 2011). Presently the only drawback to using MICA water is diverting drinking water to water for such industrial uses. This research gives compelling data for the utility

of MICA water for nuclear decontamination and disposal, reduced carbon emissions, food preservation, and untapped potentials.

Brittney Maine. *CRISPR and Badiou: Ethics in Science.* The invention of CRISPR/Cas-9 can shape the human genome resulting in the eradication of malaria, treatment of HIV, and development of new drugs. We can also alter primate embryos, and eventually alter human embryos. We can, but should we? However, as Alain Badiou proposes in his book *Ethics, An Essay on the Understanding of Evil*: the question is not should we, but rather are we doing so for the right reasons? Badiou proposes a society in which Good is enacted for the sake of Good not just once Evil has been recognized. Using Dr. Jennifer Doudna's book *A Crack in Creation, Gene Editing and the Unthinkable Power to Control Evolution* as a roadmap to what this technology can do, I propose an ethics based on Badiou's work relevant to the scientific community. Ethics should be at the helm of the scientific debate, not just an afterthought that comes after innovation. This is a new way of looking at CRISPR that does not just consider the negative potentials of the technology, but instead challenges scientists to think of ethics first and possibilities second. In the spirit of Badiou, scientists must be challenged to not only work towards a goal, but to be working towards a truth, the ultimate truth of CRISPR. Yes, it is good for society but what is the reality of that Good?

Elyse Mallonee. *Native American History in the 20th and 21st Centuries.* When people think of the term 'Native American history' they might think of a civilization that lived long ago alongside the settlers of the New World, or individuals like Sitting Bull, who led the resistance at the Battle of Little Bighorn. Unfortunately, this is as far as most people's knowledge of Native history goes. It is the intent of this project to evaluate current knowledge and bring to light some of the lesser known moments in Native American history from the 20th and 21st centuries. A survey has been given to 295 OCC students to test the knowledge of five events from the 20th and 21st centuries concerning the Native American population. These events include: American Indian boarding schools, sterilization of Native women, the Indian Relocation Act of 1956, high suicide rates among Native youth, and inadequate running water and electricity on the Navajo Reservation. Surveys were also given to history teachers from OCC and local tribal members to learn what elements of Native history are highlighted in classes and why they believe those elements have been chosen. Results from the survey, data analysis and interviews show that most students were interested in learning more about Native American history. Moreover, many students emphasized that they wished more time was spent on recent

Native history throughout their education. It is important to make students aware of these occurrences because, after all, it is not just Native American history. It is American history.

Emily May and Melissa May. *Effects of Animal Therapy on Stress Levels.* In America, 53% of adults have reported health problems such as heart disease and depression due to untreated stress (American Psychological Association, 2017). One type of therapy used to decrease stress is animal therapy (Earles et al., 2015). There are two major types of animal therapy: in-vivo therapy, which involves interactions with live animals, and imaginary therapy, which involves imaginal exposures that may use toys or dolls to forward the process (Friedberg et al., 2009). Research has shown that among participants with specific types of disorders like OCD and PTSD, symptoms have improved with the use of in-vivo therapy (Foa et al., 1999) compared to imaginary therapy. However, the majority of studies have not explored how these types of therapy may influence general stress levels in community college students. A total of 23 participants from a psychology class at Orange Coast College were separated into two groups: a treatment group that was exposed to a live rabbit and a control group that was exposed to a stuffed rabbit. After the exposure, participants were given a stress questionnaire that asked about their stress levels before and after their interactions with the rabbit. Results indicate that participants' stress levels were lower when they were exposed to a live rabbit compared to the stuffed rabbit, however, the relationship was not significant. Although the findings of this study were not significant, animal therapy can still be used to alleviate stress. Future studies may need to include a bigger sample to find significant results.

Jacob Mendez, Sara Nomberg, David Vo, and Chris Wright. *How Can Culture and Social Media Use Relate to Self-Esteem, Loneliness, and Depression in College Students?* A large body of research suggested that technology, more specifically social media, is related to the quality of social relationships and aspects of personality such as identity in high school students (e.g., Cyr, Berman, & Smith, 2015). Moreover, the research also showed that a cultural factor such as collectivism can be a drive for social networking in social media (Muralidharan, La Ferle, & Sung, 2015). The current study examined individuals' culture with their use of social media and how it relates to users' psychological well-being. We administered a self-reported survey that included cultural orientation, social media use, and other various psychological scales (e.g., loneliness, self-esteem, and depression). Two hundred sixty-four Orange Coast College students completed the survey online. A series of Pearson

correlations indicated that people who identified themselves as being more collectivist tended to have higher use of social media and develop more social relations, $p < .05$. Furthermore, we found that collectivist individuals appeared to have lower levels of loneliness and depression, and showed higher levels of self-esteem, $p < .05$. Lastly, we found that people who use social media more frequently had a lower self-esteem. Interestingly, cultural orientation and social media interacted in a complex manner in terms of affecting respondents' psychological well-being. Thus, it is important to include all these variables and generate a comprehensive model to demystify this complex underlying structure.

Giang Nguyen. *Challenges of Women of Color In STEM When Transferring from Community College to 4-year University.* This research project is to explore the current challenges that women of color in the disciplines of science, technology, engineering, and math (STEM) confront when they transfer from community colleges to four-year universities. Many women of color enter STEM field in higher education through community colleges; however, transfer rates are low, retention rates of transfer students at four-year universities are lower. Drawing from the data in 4 semi-structured qualitative interviews with Southeast Asian transfer students in Irvine, Orange County, this research project provides four primary findings: (1) faculty interaction has a greatly positive impact on student's self-efficacy and retention in STEM majors; (2) peer environment is proved to not have significant effects on students regarding transferring process; (3) poor quality of counseling service discourages students from remaining in STEM, as well as their self-efficacy in the transferring process and success in upper division classes; and (4) parent expectations put a lot of pressure and burden on these transfer students. Based on such findings, this project makes five preliminary recommendations to better serve women of color in STEM majors to streamline the transfer pipeline: (1) create a faculty training program specialized to students' needs; (2) encourage faculties to promote on-campus opportunities and activities; (3) improve the personnel and proper strategies within the counseling service; (4) have more handling-stress workshops about for students; and (5) improve campus outreach strategies to raise awareness of available academic opportunities and programs. Eventually, I hope to advance equity for women of color in order to improve the transfer rates and retention of underrepresented minority women into STEM fields.

Hanna Nguyen and Stephanie Hernandez. *Music-induced Mood and Memory Performance.* Music has the profound impact of

affecting the mood of those who listen to it. Songs composed in major keys express cheerful tones, while minor key songs communicate melancholy tones; both of which can impact memory. For example, Eschrich, Munte, and Altenmuller (2008) determined that university students performed better in memory tasks when major key songs were played. However, this current study focused on an overlooked population: community college students. Hoping to examine the question of how a song's key can influence memory, it was hypothesized that listening to major key songs would enhance memory performance. Twenty-three students in a psychology class at Orange Coast College earned participation points for taking part in the study. The participants were randomized into two groups; one group listened to the minor version of the song and the other listened to the major version. Each group then did a memory recall task. The minor group performed slightly better than the major group, but the relationship was not statistically significant. Despite these results, this is a valuable contribution to research since individuals who are interested in the interaction of music and cognitive performance will benefit from this, such as music therapists or students who listen to music while studying. However, future researchers should obtain a larger sample size in order to explore this relationship more thoroughly.

Kha Nguyen, Aryan Nikgozar, and Shaun Quinn. *Cycloid - An Analysis of Its Special Property.* This research focuses on the analysis of a cycloid, one of the most important curves for its versatile applications in science, engineering, design, architecture, and art. A cycloidal curve is generated by the motion of a point on the circumference of a circle as the circle is rolled along a straight line in a plane. One of its fascinating properties, which will be inspected in detail, is that the time to reach the lowest point for an object descending down the curve is independent of the object's starting position. In other words, cycloid is a tautochrone. To investigate this characteristic, first, a cycloid prototype was designed with a CAD, computer-aided design, software (e.g. SolidWorks®). Then, a CNC (computer numerical control) machine was used to cut out the trace of a cycloid curve on two 4' x 8' x ¾" pieces of medium-density fibreboard wood. Finally, the pieces were assembled together leaving an in-between gap whose width was less than that of a cue ball (i.e. less than ~2.25") so that the ball would roll down the curve without straying from the right course. If the cycloid property holds, two cue balls set in motion down the cycloid at different heights will meet each other at the center of symmetry of the curve. To test and validate the prototype, the experiment as described above were repeated several times and performed with different starting positions of

the two balls and their descending times tracked. Several modifications and improvements of the prototype were necessary as the pieces needed to be sanded. The results were happy to be that wherever the cue balls were positioned on the curve, they always met each other in the middle of the curve with their descending times being identical. Therefore, the cycloid was proven to be a tautochrone curve. During the research process, it was clear that the cycloid curve could be used for other experiments, such as analyzing the fastest path to get from point A to point B. As a follow-up of this project, a 360° model of the cycloid (i.e. a cycloidal bowl) can be designed and built based on the cycloid curve. Both could be used as interesting demonstrations for educational purposes as an interdisciplinary project, ranging from mathematics and physics, to engineering and technology.

Nancy Nguyen. *Vietnamese Migration: Educational Experiences.* This research project challenges dominant understandings of Asian (often reduced to East Asian) international student experiences in higher education by studying the specific experiences of Vietnamese immigrant and international students. While there is a lot of literature on Vietnamese refugees from the 1970s following their migrational patterns, there is not much being researched on the current population now. Drawing from data from 4 semi-structured qualitative interviews with Vietnamese immigrant community college students in Orange County, California, this research project makes three primary findings: (1) OCC has many opportunities, but not much outreach; (2) Vietnamese students have created their own community within the school without much structure provided by outside resources; and (3) most students are very overwhelmed when first coming here, and feel that there is not much support for new international/immigrant students entering an American college system. Based on these findings, this project also makes three preliminary recommendations for better serving the needs of Vietnamese immigrant students in higher education: (1) better counseling services; (2) more ESL support in the form of classes; (3) more outreach from the school concerning all activities related to low-income or immigrant students. Ultimately, I hope to bring awareness to this population on California Campuses, and to find out what is needed to support these students, as they are a significant population of Orange County's international and immigrant students.

Teven Ong, Daniel Reyna. *Orange Coast College Recycling Center Mobile App.* The project's purpose was to use Java 8 programming with Android development tools to create a useful tool for the

Orange Coast College recycling center based from the center's needs and off client ease of use. The project consists of two apps. The first is an app to help people keep track of their recycling and be able to keep logs of their contribution to the environment. The Second, was a scheduling app. The project's process revolved around an initial interview with the center's lead Mike Carey. We brought in concepts and initial designs and asked for what possible features would be wanted. From the interviews we established the redesigns were in order and found a way help with their goal of going paperless by making a scheduling system app to replace their paper system. So from here, the project became updates based on feedback from the center and now the center has a new scheduling app and logging app for its clients. The app is now currently on the app store for android devices. This work will provide clients of the center tools to help maintain their contributions and logs.

Jocelyn Rodriguez. *The Evolution of Anxiety.* Anticipatory anxiety, or a heightened state of worry in anticipation for a future event or meeting, can have a significant impact on individuals' physical and emotional wellbeing. From an evolutionary perspective, anxiety arose as a mechanism that enabled individuals to predict and prepare for future threats. I am interested in whether and how this type of anxiety influences academic success. I have conducted a literature review to investigate how this primal function may be advantageous or disadvantageous in an academic setting. Using the EBSCO host, I searched with the key phrase "anticipatory anxiety effect on performance" and narrowed down my search with "anxiety and academic success." In the 10 peer-reviewed primary articles I read, I found evidence showing that high anxiety individuals perform better than those without anxiety when tested without a time limit. Conversely, high anxiety individuals perform worse when they are tested with a time limit. Understanding when anxiety is beneficial and when it is not can improve the treatment and management of anxious students to maximize the positive effects of anxiety.

Jonathan Sorensen. *Aquaponics as a preferential alternative to traditional farming methods in regards to plant growth.* One of the major problems we all face today is the over-consumption of natural resources. While it is important to understand the negative environmental impact of contemporary farming and fishing practices, it is equally important to provide potential solutions. Aquaponics is a combination of soil-less crop and fish farming, as an efficient means to grow produce and provide protein in one confined system. Nutrients from fish waste water is pumped past crops' roots thus removing waste and maintaining

clean water for the fish a source of nutrients for the plants. Aquaponics systems are scale-able and can provide both industrial options as well as small scale urban environment. My goal was to test the efficiency in regards to growth rates using a variety of commonly grown crops. This project involved 3 sets each of Jalapeno, Sweet Basil, Peppermint, and Strawberries grown in OCC's aquaponics system, and standard soiled pots and fertilized soil pots each. I then tracked the change in growth on a weekly basis. Data shows that the Jalapeno and the Strawberries in aquaponics outperformed the fertilizer while Peppermint and Sweet Basil in fertilized soil outperformed the aquaponics. Based on these results, it appears that plants that produce edible produce grow well in aquaponics year-round. Commercially it is more efficient to switch to aquaponics over traditional farming methods for these and similar crops.

Daniel Soroudi, *Modern relationship between alcohol consumption of peers and the self*. Studies in the early to mid 2000's show an association between perceived alcohol consumption of peers and self-reported consumption. There is a significant overestimation of alcohol consumption across college campuses. This misperception has been shown to normalize this activity, making it a powerful predictor of alcohol intake. This presentation discusses social media's impact on perception of alcohol consumption and personal alcohol consumption across college campuses. Four search phrases were used for this literature review, "College alcohol consumption", "Student misperceptions of alcohol intake", "Portrayal of alcohol in modern media", and "Relationships between the perception of social norms and personal alcohol intake". A survey that assessed types of number of alcohol related posts viewed on social media and perceptions of peer drinking behaviors was collected from a convenience sample of 200 students. Correlations evaluated the relationship of viewing alcohol related posts and perception of peers drinking. This presentation narrows the view to a post-social media society in order to demonstrate social media's influence on the gap between perception and actuality. Models like the Facebook Influence Model explain the behavioral theory behind influential aspects of Facebook. Social media does not accurately portray the lives of others, and it is evident that social media increases exposure to more alcohol-related content. As college students post alcohol-related activities onto social media, it becomes normalized in the eyes of other students, leading to more personal consumption.

Jonathan A. Stockman. *Accommodating the Baby Boomer Generation*. The baby-boomer generation makes up a substantial

portion of the United States population and comprises of any person born between 1946 and 1964. As the baby-boomer generation continues to age, elderly from the generation will need assisted-living services. This research explores how well nursing homes in Orange County are prepared to accommodate the substantial populace in future-need of assisted-living services. Data regarding the number of beds available in Orange County nursing homes, with the inclusion of population pyramids to make projections of incoming baby-boomers, are gathered and formulated to determine how well nursing homes are prepared to accommodate the future populace. The research finds that Orange County nursing homes are several thousand beds short to accommodate the projected incoming baby-boomers adequately. The lack of beds necessary to accommodate the projected populace could be a result of uncareful planning and action by city demographers and planners; a lack of market-awareness to potential investors; regional differences in consumer taste (i.e., elderlies in Orange County prefer to be cared for by family and friends), or other possible but unaccounted for reasons. It is also possible that nursing homes purposefully bottleneck the supply of beds as a business strategy to increase the price per bed. More information and research are needed to explore variables not considered in this study to understand the cause of the lack of beds in nursing homes despite projection increases in populations in future-need of assisted-living services.

Lyvia Yoho. *Media and its Selective Reporting of Crime.* Media Reporting and Perpetuating the Fear of Crime

According to the media, crime is rampant and ever growing in our world. This is not necessarily true. In fact, two years ago crime was decreasing, and had been on a downward trajectory since the 1960's. The uptick in crime only began in 2016, but you would never know that if you just followed the media reports. As a result many people have been living in fear of this assumed growth in crime. This fear of crime may in fact be the very reason why criminal acts have increased; fearful people make rash decisions. The reporting that we should live in fear, causes people react with even more fear. Many TV and online media outlets perpetuate the claims of continuous dangers, and it has done nothing more than cause that danger to be spoken into existence. In my research, I specifically examined websites that feature articles from scholarly journals, such as the Journal of Criminal Justice and Popular Culture, as well the Journal of Communication. I also utilized websites that blogged about such topics, like npr.org. These were used more sparingly but were still beneficial. The FBI reporting's on violent crimes and those statistics helped my claims and added to their credibility. The results from my investigation

are clear: there appears to be clear correlation between increased media attention to crime and more crimes being perpetrated. By increasingly reporting criminal incidents and sensationalizing perpetrators and victims, people become more on edge and then act out in criminally violent and deviant ways.

Project RAISE Undergraduate Research at Cal State Fullerton

Project RAISE focuses on increasing the number of Hispanic and low-income transfer students who complete bachelor's degrees in STEM and enter a career in these fields. The Project RAISE undergraduate research program offers summer opportunities for selected community college students to gain first-hand experience in scientific investigation in a dynamic, collaborative research environment with CSUF faculty. Project RAISE also offers partner community colleges a transition program for STEM students transferring to CSUF. Participants in the RAISE Transfer Program (RTP) receive priority registration as well as access to academic, graduation and career specialists.

In 2017, three OCC students conducted research at CSUF as part of Project Raise. Here is a little more about their research.

DESIGN AND CREATION OF SHRNA VECTOR PCS6/U6-P21-GFP

Author: Jocelyn Leon

Faculty Advisor: Nilay Patel

ShRNA helps degrade the mRNA of our gene of interest, CDKN1A which codes for P21. When this shRNA is transfected into HeLa cells there is a decrease in P21 protein levels. P21 can encourage cell cycle arrest when it is stimulated in certain events in its environment. P21 also acts as a transcription regulator. ShRNA has stable knockdown of the gene and for siRNA, it also can become diluted over time and can affect the future cell lines. The ShRNA cell line is more stable, the only draw back is that it takes more time than siRNA. This project focused on creating a shRNA plasmid that targeted CDKN1A. The shRNA was designed with 3 restriction enzyme sites which were, Xho I, MluI, and Hind III. The restriction enzyme site in the middle, MluI, was added in between the poly A tail and shRNA sequence so that future shRNA sequences can be ordered without the poly A tail. With each future sequence being less than 60 bp we can reduce the cost. We inserted the P21 shRNA into our plasmid of interest, PCS6/U6 to create PCS6/U6 (U6) P21 downstream of the U6 promoter. In order to insert the GFP tag into this plasmid we used primers with cut site overhangs, Avr II and KpnI to amplify the GFP sequence from the CMV.GFPmax. These two pieces, U6 P21 and the resulting GFP sequence were then ligated together to form the final plasmid, U6 P21 GFP. In order to check for confirmation that we had the correct product after ligation and transformation we had to conduct an RE digest using a dual cutting restriction enzyme, Hind III. Once the plasmid was confirmed via RE digest,

we transfected the plasmid into HeLa cells and took florescent images. Cells transfected with U6 P21 GFP expressed GFP and exhibited a decrease in P21 expression. ShRNA knockdown of P21 expression led to a decrease in signal. The GFP tag helps with checking for the transfection efficiency.

EFFICIENCY OF SOLAR PANELS: BLACK ROOF VS. GREEN ROOF

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Faculty Advisor: Dr. Garret Struckhoff

Solar energy is one the newest technologies poised to make an impact on future generations. In particular, Photovoltaic flat-panel solar panels have been the most common type of solar panel that has seemingly connected unlimited amount of sunlight and useable energy together for the public and industry alike. This technology is promising, but not perfect. Photovoltaic cells, the “power-producers” in flat-panel solar panels, have been thought to have the tendency to decrease in efficiency when they are exposed to higher temperatures. More sunlight may have more power potential, but we are limited by the amount of heat affecting the cells; this is our challenge to overcome. In this experiment, the method of using a green roof as way of providing a cooler surface for solar panels in efforts of increasing the PV cell efficiency will be explored. To test this hypothesis, a green roof was compared to a black roof, consisting of asphalt rock and pea pebbles on black membranes.

BLACKBOX: AN ALGORITHM FRAMEWORK FOR DEFENDING AGAINST DDOS ATTACKS ON SDN NETWORKS

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For many years, Distributed Denial of Service attack (DDoS) was the most challenging cyber-attack type for the defense systems. A DDoS attack prevents legitimate users from accessing to specific network resources by disrupting its connection to the network. Fortunately, the recent foundation of Software-Defined Networking (SDN) technology provides us more opportunities to defend against DDoS attacks in more efficient manners. In this paper, we introduce Blackbox, an intelligence framework which allows security engineers to effectively develop their own algorithm of defense. In other words, Blackbox defines and keeps

track of threat levels, detects, and responds to different aggressive attacks in real-time basis. It also works as the decision-maker of the network controller to direct the switches for manipulating their flow tables. For experiment, we present how to adopt Blackbox framework to implement a simple version for mitigating the UDP DDoS flooding attacks. As a result, the experiment has proved our solution idea, the Blackbox, work efficiently on local area network emulation. It also shows that how easy to integrate the defense algorithms into the controllers through adopting Blackbox framework design.

About the donor:

Giles T. Brown and his wife Beth were founding members of the faculty at OCC and met here at the college. Giles left OCC in 1959 to become a faculty member at Cal State Fullerton and eventually became the Dean of Graduate studies.

Giles T. Brown's gift to the college funds programs and activities that benefit instruction. The Forum Theater also bears his name.

