



**Multicultural Undergraduate Research
Art and Leadership Symposium**

March 31, 2017
LSC Grand Ballroom A

**Colorado
State
University**



An Equal Access and Equal Opportunity University

Welcome!

Welcome to the third annual Multicultural Undergraduate Research, Art and Leadership Symposium, we truly appreciate your presence. With MURALS, we are intentionally reaching out to students of color in various disciplines and exposing them to a variety of undergraduate research opportunities. Mentoring, presenting research, networking, and learning about multicultural leadership are four main aspects of the program.

A special acknowledgement to all the student participants, graduate student evaluators, and the Colleges and Divisions who supported this endeavor. The event would not have been possible if we did not work together to enhance student's educational experience at Colorado State University.

MURALS co-chairs,

JoAnn Cornell, Director, Asian/Pacific American Cultural Center

Melissa Edwards, Associate Director, Office for Undergraduate Research and Artistry

Bridgette Johnson, Director, Black/African American Cultural Center

Arlene Nededog, Director of Inclusion, College of Natural Sciences

A special thank you to the MURALS sponsors:

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Acknowledgements

MURALS Committee:

- Dr. Lumina Albert, College of Business
- Dr. Antonette Aragon, School of Education
- Dr. Melissa Burt, Atmospheric Science, College of Engineering
- JoAnn Cornell, Asian/Pacific American Cultural Center
- Dr. Melissa Edwards, Office for Undergraduate Research and Artistry
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- Arlene Nededog, College of Natural Sciences, Dean's Office
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Graduate Student Evaluators:

- Trevor Aguirre, Mechanical Engineering
- Carolina Banuelos, Sociology
- Haley Blackburn, Public Communication and Tech
- Ashley Budde, Animal Sciences
- Hieu Bui, Bioengineering
- Marisa Carreon, Economics
- Phillida Charley, Pathology
- Elliot Chiu, Pathology
- Wande Benka-Coker, Environmental Health
- Dominique David-Chavez, Human Dimensions of Natural Resources
- Zachary Flores, Mathematics
- Joe Hahn, Student Affairs in Higher Education
- Kelly Hassel, Cell and Molecular Biology
- Arielle Howell, Zoology
- Octavius Jones, Ethnic Studies
- Shaista Karim, Bioagricultural Sciences
- Trenice Lane, Tourism Management
- Stephanie Morphet, Cell and Molecular Biology
- Gerardo Narez, Bioengineering
- Afnan Shazwan Nasaruddin, Bioagricultural Sciences
- Mike Nguyen, Chemistry
- Marina Rodriguez, Fish, Wildlife, & Conservation Biology
- Perla Sandoval, Psychology
- Vanessa Selwyn, Cell and Molecular Biology
- Rachael Sitz, Bioagricultural Sciences

Marketing

- Neylin Muneton, Office of the Dean, College of Natural Sciences

Photography

- Cale Rogers, College of Business

Workshops

10:30 – 11:45am

LSC 308: What is Research?

Melissa Edwards, Associate Director, Office for Undergraduate Research and Artistry (OURA), The Institute for Learning and Teaching (ILT)

The Office for Undergraduate Research and Artistry is dedicated to facilitating meaningful undergraduate experiences that expose students to diverse opportunities to work with faculty or industry representatives within their discipline. These opportunities are intended to provide students with an extension of the learning experience beyond the classroom, to foster mutually beneficial relationships between students and faculty and between students and industry, and to impart experience-based credentials to undergraduates seeking to enhance their resume. Learn more about your programs and how we can help facilitate these benefits. For ALL majors and interests

LSC 310: Diversity and Inclusion in Leadership

Carl Olsen, Program Coordinator for Men's Programming & Violence Prevention, Women & Gender Advocacy Center

Leadership is a complicated process, maybe more so than inclusivity. This workshop will help understand the dynamics of power and privilege in the context of leadership!

LSC 312: Graduate Student Panel Reflecting on Their Educational Journey

Moderator: Arlene Nededog, Director of Inclusion, College of Natural Sciences

Graduate Student Panel: Hayley Blackburn (Public Communication and Tech), Phillida Charley (Pathology), Octavius Jones (Ethnic Studies), Dustin Lee (Food Science and Nutrition), Diane Acevedo (Chemistry) and Dominique Montano (Zoology)

Current CSU Master's and PhD students will share and discuss their personal experiences about graduate school.

Schedule of Presentations

I		LSC 300	LSC 304	LSC 306	LSC 308	LSC 310	LSC 312	LSC 328	LSC 330
1:15 – 2:15 pm	Selam Tewahade p. 65	Daniela Aguilar p. 7-8	Jasmine Zachariah p. 20	Daiszha Cooley p. 30	Kelvin Asante p. 10	Tina Ngyuen p. 18	Rheya Eddings p. 13	Tabythia Lee	
	Allyvanessa Valera and Angie Gonzalez p. 20	Ainissa Proctor p. 40	Andres Bothe p. 28	Marcela Riddick p. 24	Arisson Stanfield and Mikaela Maldonado p. 46, 48	Alexandria Johnson p. 22	Eunice Bembissa p. 27	Kiri Michell p. 37	
	Adiam Tesfasclassie p. 44	Brissa Santacruz p. 64	Victoria Villegas, Dianahi Sanchez, and Stephany Solis p. 44	Avery Rothe p. 41	Whitney Marsh p. 35	Raeven- Lynn Clockston p. 51	Mahdi Ramadan p. 60	Mania Orosco- Martinez p. 39	
	Abigail Crowder p. 52	Elizabeth Gordon p. 55	Jordan Aragon p. 49	Hyang-jin Cho p. 16	Keith Christian p. 50	Kelly Kuhn p. 32-33	Ashle' Tate and Maya Cousins p. 22	Savannah Rocha p. 63	
II		LSC 300	LSC 304	LSC 306	LSC 308	LSC 310	LSC 312	LSC 328	LSC 330
2:30 – 3:30 pm	Bethany Andrade p. 9	Danielle Diaz p. 12	Daniela Aguilar p. 7-8	Demi Serrano p. 19	Nicholas Pepping p. 17	Destini Hall p. 14	Timothy Curry p. 11	Abriyana Senter p. 41	
	Adrienne Shabandaria, Lydia Gonzalez, and Annie Ngo p. 42	Amy Yung p. 45	Anarely Marquez- Gomez p. 34	Vance Payne p. 23	V Bellinger p. 26	Briana Compton p. 29	Jhasmyne Cooper- Moore p. 30	Kelly Kuhn p. 32-33	
	Puleng Marutle and Kahlea Khabir p. 36	Gabriela Ramirez p. 62	Rachel Surratt p. 43	Jordan Logan p. 34	Zelle Moore and Lyanne Kue p. 38	Lilia Maeda, Chiara Flores, and Kalene Borrego p. 56	Mohammad Ramadan p. 61	Mariah Jordan p. 31	
Angel de Jesus Martin p. 54	THani Holt p. 15	Arisson Stanfield and Mikaela Maldonado p. 46, 48	Gustavo Ontiveros p. 59	Lena Cuevas p. 53	Luna Martinez p. 57	Hermela Tuquabo p. 66	MicA3:120h elle Mendoza p. 58		



**VISUAL, CREATIVE AND PERFORMANCE
ART
ABSTRACTS**



Summertime

Daniela Aguilar

As an English major and Chicana, I often feel the pangs of misrepresentation or lack of representation in the media. After I transferred to Colorado State, I spent time exploring what the idea of representation meant to me, and what kind of power it gave those who were represented. It has since become my belief that the representation of marginalized communities within literature serves not only a means of cultural normalization, but as a powerful and sometimes cathartic experience for those who have traditionally experienced cultural erasure. Summertime is a poem born out of this belief. Summertime is written from the point of view of a young Spanish-speaking child, and the language and grammatics of the piece (it contains no punctuation or capitalization) inform this. In the crafting of this piece, I wanted to create a world where a rural Chicano culture was explored without being exploited. Because of this, though the piece contains bilingual dialogue and explores a rural setting, the piece itself is unconcerned with a larger ethnic identity, but rather focuses on the singular identity of the speaker. It is a coming-of-age poem, in which the first stanza, it is noted that, the summer i turned seven,/the barn cat called rocks had four kittens,/tia Lisa moved back into the big house with abuela,/Jeremy archuleta peed on my chicken coop and made me watch/and hermanito was born. Thematically, I wanted this piece to explore the idea of memory. Throughout the formation of identity, there are moments where action is imposed on us in ways that demand that we become reactionary people. In the examination of my own life, I felt that the ways in which I reacted in these moments would later define and inform my character. In summertime, I sought to create a narrative of a speaker who is unconsciously experiencing the growing pains that accompany these defining experiences. Rather than simply state, I am affected by this experience, the speaker, in her words, ruminates on them. The first stanza of the poem lists these moments, and each subsequent stanza returns to and spends time with these images. In the repetition of these images, the reader can see that the speaker can no longer observe the world around her without seeing the scars of her experiences. This meditation on specific images and experiences can best be done in the poetic form, which was why I chose to use this medium for this piece. I felt that the form allowed for a naïve exploration, where the speaker was not realized in the trauma that she has experience, but the repetition and diction would allow the reader an insight that the speaker did not have.

The Abbey

Daniela Aguilar

The initial drafting of *The Abbey* began after the 2016 Orlando night club shooting. In the wake of the shooting, I watched the traditionally positive spaces of gay nightclubs become tarnished with terror. Because of this, I began to think a lot about space. For a normative hegemonic culture, churches are often viewed as sacred, safe places. For those who have been marginalized by religious establishments and social contracts, safe places can look different. Safe places can look like strobe lights and sound like a heavy bass beat. *The Abbey* was born out of this idea. *The Abbey* primarily utilizes imagery, a non-linear narrative style, and point of view in order to explore notions of identity and space. The imagery featured in this piece can be tenuous, as religious images and metaphors are often set against concrete, natural images. In referring to the Abbey (the night club featured in the story), the speaker states, *The Abbey* was the closest thing I had to church then. Every pair of arms that held me was a baptism. Every shot I took was a communion. While the speaker refers to the Abbey, himself, and his significant other with words that have explicitly religious connotations, he speaks of the spaces where his identity was repressed in more concrete and natural images. When referring to his childhood home, the speaker states, In North Carolina, everything screamed the blanket of August brine pulled us into the dirt, the stems of cotton swallowing us whole. Rather than represent the story in a linear narrative style, I felt that it was important that the form of this piece be subversive of this narrative tradition. The narration can be a bit jarring and disorienting in places, and I wanted this to be illustrative of the alienation and discomfort that can accompany being a member of a marginalized community in a space that does not feel like your own. Similarly, it was important that the story be told in first person point of view in order to create a character that was not a mere subject in the story, but the speaker. In doing so, the speaker in the piece has agency over his own story. Though this story features a love affair, I did not feel like the love that was central to the story was that of the two main characters. Because of the circumstances of these two characters, their love affair could only be realized and created in a space like the Abbey. *The Abbey* was the catalyst for their connection, and because of that, the Abbey is sacred. The ending of the piece does not foreshadow a fairytale ending for the two central characters, however the speaker expresses a resolve to return to the Abbey, which as the author of this piece, I feel is more important. The speaker is resolved to live despite the tragedy that has affected his community, and he makes the important decision to reclaim his space.

Con Safos

Bethany Andrade

Con Safos is a spoken word poem based around a uniquely Chicax phrase. Con Safos is a phrase created in the streets of San Antonio, Texas. It began as a signature (C/S) at the bottom of graffiti artist's murals and quickly transformed. Con Safos is now used by writers, artists and activists as a way to sign off and have their work be recognized as their reality and truth. It was a sign of respect, that whatever was written or painted was the creators. It is their truth and no matter what comes after it will always stand. It is occasionally written as con o sin safos' with translates to with or without safety'. This is a promise, that whatever happens to their mural or placa will act as an echo. If respect is what it is met with, respect will come back on to them, but if it is erased or destroyed there will be consequences. I first heard about this phrase when reading the book, *Drink Cultura* by Jose Antonio Burciaga. I believe that Burciaga explains the definition of Con Safos beautifully: Like an amen, whether you agree with me or not, whether you like it or not, with all due respect, this is my reality. This is where I first got the idea to write my poem. I took this phrase and applied it to the truths of people of color, specifically Chicaxs, in American society. They are natives of the land and helped build this country and currently their realities are being erased, alternative facts and Meta narratives have solidified this. With new executive orders being passed to detain immigrants and those without documentation to slavery no longer being taught in some schools. I wanted to turn the myth of America being a post-racial society on its head and show the realities and history for people of color. It is important for us all to be understood and met with respect. I chose to write a spoken word poem for my project because I feel it is the best way to convey my thoughts. Personally, writing has always been an outlet for me. I am a very shy person and being able to fully write out my thoughts and speak them with confidence is important to me. Spoken word does just that, it has been used for years as an outlet for creativity and to express the realities of those speaking. Spoken word is just intimate and powerful enough to share my thoughts the way I want.

The Golden Gallery

Kelvin Asante

My submission piece is a short story called the Golden Gallery. This story is loosely inspired by my study abroad experience in England. While studying abroad, I travelled to different cities in Europe. I got to meet people from different cultural background and this made me appreciate my Ghanaian cultural background even more. I chose to write and submit this story to motivate my peers to study abroad if they can! I was inspired by my trip to St. Paul's cathedral to write this short story! The creative process for writing this piece consisted of reflecting on the trips that I took while studying abroad and writing a story that reflects the experience I had while travelling. The Golden Gallery: A short story;

“Wait! Wait! I'm sorry I'm late! I yelled while running towards the bus. It was the last one leaving to London and I would have to spend the night in the station if the driver didn't let me on. The bus driver stopped the bus when he saw me waving frantically. He opened the bus door and I grabbed a seat while thanking him. The bus ride from Exeter to London was 3 hours' long and I had prepared for this long bus ride by making a Spotify playlist. I put my headphones on and opened the browser on my iPhone to search for good hostels in London. I finally decided on a cheap but secure hostel called Jackson's Haven in South-Central London. I closed my eyes and took a nap while praying that the 3-hour journey would pass by quickly. Three hours later, my heart started to fill with excitement because I was finally in London for the first time. I opened up maps and typed in the address of my hostel. I got down from the bus and walked to my hostel. The receptionist at the hostel asked for my ID and gave me my room keys. While, walking to my room I prayed that I wouldn't have any creepy hostel roommates. My friends told me stories about their weird encounters in hostel rooms so I was hoping I would get decent roommates. I walked into the room and I saw a guy sitting on top off a bunk bed while watching something on his laptop. Hey! My name is Andre, he said and I told him I was called Jake. He told me he was from France and I told him I was an exchange student in Exeter. He invited me to go to St. Paul's Cathedral with him and I accepted since I thought we were just going to a historic church in London. Little did I know that going to St. Paul's would be the climb of my life...”

Does Black Lives Matter?

Timothy Curry

The issues that been seen by the public in the year of 2016, displaying the agony and affliction on black individuals. Watching these moments take place on social media or TV is what inspired me to create this piece showing my own felling through the form of art. I made these pieces with an abstract approach. This is my own representation to express and show the community what been happening through art. In the society that we live in, social media is the new way of seeing things. With the power of capturing the moment in our hands, people in society will waste no time recording expected and unexpected moments. Police brutality has been going on across the globe for ages. In the time we live in now police are seen harming and taking the lives of black people in particular. Some of the images drawn are of petrifying moments that took in 2016. What is seen is a young black 15-year-old girl who was beaten and raped by an on-duty officer inside of a holding cell. Why the girl could not do anything the officer walks away free. This event was recorded by the security camera that is inside the holding cell. The next image is the notorious scene taken place in Falcon Heights Minnesota where a cop fatally shoots a man named Clarence Castile during a traffic stop. This video was broadcasted all over the world via the social network. Clarence was killed in front of his children and girlfriend. The other images are my own abstract work of police brutality. I use the brown paper because it reminds me of some African mask that were used in ritual dances and social and religious events. I decided not to use color because this is not colorful moments. I used black ink because it gives a negative fell to imagery and it says more to the viewers.

Spoken Word

Danielle Diaz

As someone who has participated in spoken word in the past, I understand the impact that it can have on its audience. Poetry is often miscounted as a source of academia but I argue that poetry can enlighten listeners just as much as reading a text book. Therefore, for this presentation, I am presenting two pieces of spoken word poetry. The color of our skin at times separates us dramatically in our conditions of living and experiences in our lives. We often do not think of the advantages and disadvantages that we hold on a day to day biases. However, despite these differences we share common human experiences that can be shared across all cultures and people such as pain, joy, loss and the pursuit of happiness. These two pieces of poetry are opposite from one another in the sense that one speaks of social change and an agency for a new system on communities of color that is not oppressive as the current system of government. The second poem is on a human experience undeniable by any person of any color; grief and the loss of a loved one. Though these poems appear to be far and separate from each other they do share a common sentiment of demanding equality in all walks of life; such as being presented with compassion and empathy through times of hardship. The feelings of wanting to experience the pain of life and the pursuit of happiness after the darkness resides are qualities that can be found in all people. I want to shed light on these similarities in a time where our differences are demanding the spotlight. For this presentation, I am using all new pieces of work due to the fact that I experience life, differently at various times in my existence. The end result of this work is to bring light to dark areas in our lives that need it most. Furthermore, my goal is to express agency of our differences in this oppressive society and to unite us in our basic human experiences.

Deception

Rheya Eddings

My work is mostly about perspective. It's done by have multiple layers and colors that interact with another, which is why my primary material is wood. Wood has many layers within it. Along with color. Although our eyes see so much they are only able to see so little of the color spectrum. Much like the tunnel vision many have in our society, it became a quest of mine to see how I could get others to see the world in a new perspective. My works is an effort to help people understand and see those perspectives. You never know if a person is seeing the same thing you are until the question is asked. Illuminated light was an attempt to show the color spectrum in a three-dimensional scale. By showing how the various hues feed into each other in a conditions cycle. Essentially the layers were made to play with the theory of white light, while giving viewers the opportunity to understand that not one person sees the world in the same perspective. When looking for inspiration I often search in the areas that affect me emotionally while also challenging my thought process. Which is why I feel it's important to make work that can captivate a large crowd of people. My favorite quote is by Mel Chin a famous sculptor he says, "The survival of my own ideas may not be as important as a condition I might create for others' ideas to be realized. This resonates with in me. Growing up in a society where not many diverse artists are celebrated or studied. I want to make work that inspires young African American women and men to pursue their own visions and creations. It's my dream that my work will live on without me, and still challenge people to appreciate a new perspective.

An Open Letter to Future Explorers: Knowledge as a Responsibility. Awareness as a Responsibility.

Destini Hall

This past year, I was privileged with the opportunity to travel to 13 different countries around the world. France, Germany, Greece, Italy, Spain, Morocco, Senegal, Brazil, Trinidad, Peru, Ecuador, Costa Rica, and The United State of America. I went into the experience with open eyes, and surprisingly came out quite disturbed with the occurrences I experienced. Before I begin this writing, I'd like to clarify that this knowledge has come from my knowledge and experience, only. I do not claim to know everything; I am only acknowledging what I have seen in the past 4 months. Although many of the concepts I've acknowledged are not new, I think the things I have to say are important, and concepts everyone should consider before experiencing cultural exploration. If you are looking to travel the world, or a specific country in general, I believe you should know that knowledge is responsibility, awareness is responsibility. It's easy to listen to others talk about the world, and hear details from media outlets, family, and friends; however, it is a challenge to see it with your own eyes. Once you have seen something, you cannot un-see it; therefore, what will you do to cope, digest, illuminate, describe, teach, harvest it? Once you have seen it, it becomes your responsibility to take care of it, and nurture it. You become the change, especially when it comes to false conceptions of the area. There is a large difference between traveling as a tourist, and traveling as an explorer, traveling to see versus traveling to experience. So, if you are looking to travel the world, or to any specific country in general, I'd suggest you pick one of those intentions. It will influence your experience in ways you'd never think of. If you do decide to be an explorer, open your eyes, open your heart, and be ready to experience an awakensess like you've never experienced before.

Living within Invisible Borders

T'Hani Holt

As the black daughter of a white woman I often am only finding my voice in writing. Living on the invisible borders of identity it's easy to disappear underneath the color line, no matter who drew it. I find my voice here on these pages, as the multitude of identities I carry push me into a box where only I seem to be sitting. Though I long to connect with other black bi-racial women in America, I have one to many identities that set me apart. To be Black American means to be Christian, to be a Black Muslim is to be African, to be Black is to be born of two black parents. So here I sit, stand, lay, as this Black American Female Muslim Convert. Invisible to the world even in death. But as I said, the words on these pages become my voice. Right now, in this time, there is too much invisibility of my Black Muslim sisters. So, because of this time, I write about us, for us. Not only do I live in these invisible borders I am caged in by hidden barriers. When I thought the silencing only came from European colonizers and their decedents, who instilled the silencing into my community by shaming those of lighter skin, as though blackness doesn't come in all shades. Further discrediting the blackness that accompanies the black women of white mothers. Here I am being silenced by the Arab colonizers and their decedents, still subject to the misogynistic black man wondering if there are more like Malik El Shabazz (Malcolm X). Here I am. Writing about this experience, because it is lost. It is hidden. It is forgotten. We forgot that the first Muslims were black. We forget that black women are the backbone of the struggle for equality. We forget that blackness is a political identity, and that pigment means the least in this struggle. I will write vignettes using a framework inspired by Gloria Anzaldua's statement *pero es dificil* differentiating between *lo heredado*, *lo adquirido*, *lo impuesta*, but it is difficult differentiating between what is inherited, what is acquired, what is imposed, to capture the hidden world of being a Black Woman practicing Islam in the United States. I believe in order to understand this identity and to talk about it we must begin with the differentiation of what has been acquired, inherited and imposed upon us.

Weight You Carry

Hyang-jin Cho

Photo of the visual art work: <http://studiojin.weebly.com/2016-weight-you-carry.html> Title: "Weight You Carry" (Installation, 18.5x5x3 ft, Glazed and Fired Stoneware, Coil Building, Epoxy, Wire) One lazy Sunday evening in May 2016, I pictured a broken and bleeding pot in my mind when I read the news about the death of an 18-year-old worker in Seoul. He was a temporary mechanic repairing a malfunctioning platform safety door alone and killed by an arriving subway train. Receiving the minimum wage with hopes of getting a permanent job at the company, he saved 3/4th of wage for future college tuition. His tool bag contained a cup noodle which probably would have been his lunch. Only five mechanics were assigned to repair the screen doors at 49 stations (more than 3900 screen doors) while an average of malfunction reports in a day were more than 30. The company did not increase manpower to save costs and eventually forced him to repair the door alone in a hurry. Painful as it is to admit, my generation also bears responsibility for creating the current absurd reality in Korea. This thought has driven me to make a pot with a pointed bottom and a figure carrying a vessel on its head. The pot cannot stand on its own without a device and eventually becomes nonfunctional. The flaking crater surface of the pot intensifies the bizarre and poignant situation that the pot is placed. In contrast to the unsettling metaphor of pots, I wish I could find hope in figures representing younger and older generation. Two figures try to reach each other even though they stand apart by the pots and do not look into their faces. The mother figure shows a timid effort to confront the problem by extending a helping hand toward the daughter figure. The bright yellow glaze of the daughter figure also implies hope and happiness she will find in the end.

Saving Analog

Tabythia Lee

My art pieces are all similar in one way, they are all done analog. My main focus is to show that analog is a rich media and slowly going away. Analog is also called film photography. I have loved photography but even more since I discovered film. Film is a whole another world when taking photographs, because you have to measure light and slow down the process. Both black and white photographs and color are done from film and printed with enlargers. The prints I have are all from film that I processed and printed myself. I choose my prints because I want to show how rich and beautiful analog photography is. The place (landscape) and portrait of the young girl are both done with a 4x5 view camera. Then I developed the film myself and enlarged the photographs to 11x14 inches and the portrait 20x8. The place photo was printed on warm tone fiber base photo paper and the portrait was on cool tone fiber base photo paper. My last photograph is of a Volkswagen bug. This is my object photo, focusing on the object itself. What is different from this photo is that it is in color. I used a different camera for the object photo. I used a medium format camera, specifically a Pentax 6x7. The 120 roll of film is developed in at Denver Pro Photo only because color film has to be done very precise. The object photo was printed with a color enlarger only changing yellow or magenta in the color filter. The place photograph is from behind the Dam Store in Loveland. With this photograph I developed the highlights and exposed for the shadows. I made sure to have the shadows open in order to see the detail. The light that make up the highlights dance along the tops of the grass. My second photo the portrait of the young girl is a character I created. This character is of a young coal miners' daughter holding a lantern and she is all mangled and dirty. My last photograph is of a 1974 Volkswagen orange bug which is the object I focused on. All three of these photos show a part of me and of who I am. The place is of where I first worked and had changed me to be a stronger person today. The coal miners' daughter is a symbol of me learning to be on my own and to have to work hard for what I want in life. My last is metaphor for looking back being the old car and with the door open it symbolizes that I have moved on from my past and look towards the future.

How to Dye

Nicholas Pepping

Colored fabrics are all around us, from the shirt you're wearing to the tablecloth you only use at holidays. In fibers there are many ways to achieve the goal of custom color in a studio setting, compared to industrial applications. The three main ways of dyeing fabric are: fiber reactive dyes, acid dyes, and natural dyes. Each dye type has its own unique set of processes for creating desired colors, and each affect cloth in various ways. I will test how these methods affect silk organza, raw silk, habutae, and cotton.

Digital Difficulties

Tina Nguyen

I meet many of people with odd face expressions when I tell them that I am an art major. Most of the time, their question is, 'Oh! So you know how to paint and draw right? What are you going to do with an art major?' The art classes students take in grade school comparing to art classes taken while in University are switched on a notch of level 20. I did not exactly know what I was going to expect taking art classes at a University when comparing to the art classes I took when I was in high school. My junior year of high school was when I found a new passion for graphic design. I swore photography was going to be what I study in college and pursue a career in, but that is not the case now. I still do photography on the side, but graphic design is my main field of concentration. Photoshop is one of my favorite adobe programs to work in. It's my go to program when it comes to designing flyers, edit photos, and making cinemographs (which I am in the process of practicing on). Working for the Black/African American Cultural Center, I am constantly working on Griot and flyers for big events such as the homecoming pageant, Black history month, and as of right now, I am in the process of working on some material for the B/AACC Banquet coming up in May. My work is consistent of a vivid color palette, abstract designs, and a large variety of fonts. I developed this style when I was in high school and stuck with. My creativity and design style describes me as a person. I am influenced by Pinterest and some of my favorite graphic designers on Instagram as well. Before creating anything in Photoshop or Illustrator, I always go onto Pinterest to get inspiration to kick start a new developing idea for an upcoming or current project. My work in Photoshop has drastically improved since the first day I had worked in the program. After days of frustration and spending hours on YouTube watching tutorials, I am now working in the Black African American Cultural Center as a graphic designer with students asking me to help teach them how to convert an illustrator document into a .png file or how to place images inside a bubble font to add more characteristics to it. Before starting to work on any project for a client or myself, I like to have a list of ideas of how I would like to approach the project. I open a blank document in Photoshop, and start collaging materials together. I always remind myself that I should never be discouraged because one person does not like my ideas/designs. Various people has a different views and meanings to what they think of art. I respect that, and we I continue to express myself through my art.

La Lucha

Demi Serrano

The art piece (painting) that I have created is accompanied with a monologue I've written that both represent my feelings and passion towards the racial issues that I have learned about and experienced since coming to a predominately White institution (Colorado State University). The painting, titled *La Lucha*, represents the struggles, such as underrepresentation, racism, discrimination, and prejudice that I, and other People of Color (POC) face in our daily lives. Since I am focusing on racial issues/diversity, I am emphasizing on my own identity as a Latina, specifically a Mexicana. Therefore, I have titled the painting in Spanish and it will depict a playing card from the Mexican board game, *Loteria* (similar to the game *Bingo*) with my own personal twist. This playing card and game idea encompasses the idea that racial issues are not always taken seriously. The severity and impact is taken lightly, like a game. That marginalized identities are playing the race card and in terms of the *Loteria* itself, we as POC never know if the cards ascribed to us, will work in our favor. Using a blank, white canvas (about 1.5ft x 2ft), I applied acrylic paint of assorted colors that are typically found in the *Loteria* game (yellow, blue, red, white, and, green). I used straight edges such as a ruler or tape to create sharp, card-like edges and first drew out the picture with a pencil to minimize mistakes when painting. I then painted the colors with brushes of varied sizes for precision and clean lines. The *Loteria* card I decided to make was inspired by the *El Corazon Loteria* card and *Frida Khalo's The Two Fridas*. This is an anatomically-correct heart painted as the Mexican flag connected with a heart that is painted as the American flag. My monologue, titled, 'What It Means To Be Me', also has the same focus and emphasis. It was created impulsively last spring after witnessing the invalidating dismissal of the murders of unarmed Black people in the United States by police. I was overwhelmed by the lack of awareness and the blatant denial surrounding racial issues from the oppressors themselves. The monologue is currently being edited still and will also be presented at CSU's the *Blank Monologues*. This, along with my own identities that empower me and challenge dominant identities, was used as inspiration to create a monologue that covers stigmas surrounding people like me. It also debunks those stigmas by exemplifying my progress and constant fight towards racial equity. I recorded myself performing this monologue and it will play on a repeated loop next to my painting on the day on the symposium. Through these two pieces, I hope to embody the passion, desperation and magnitude of what it means to be a Person of Color in the United States currently, from me. That these struggles directly and indirectly affect everyone and change is a collective effort that requires effort from the dominant identities as well.

Finding a Home Away from Home

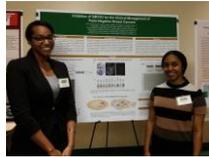
Allyvanessa Valera and Angie Gonzalez

As an ethnic minority attending an overly-white university, feeling different or alone isn't something new. Although there are times where one can surround themselves with others like themselves through the Diversity Offices provided at the university, the divide between ethnicities can be felt as soon as one walks out into the plaza, in the dorms, in class, or even off campus. Differences can be felt even stronger now, compared to just a few months ago, because of the Presidential Election and its results. We have seen fake, cardboard walls be built on our campus, and in turn have felt the metaphorical wall that has symbolized the divide in our nation. What happens when your university doesn't provide the safe space it promised when you were a prospective student? What happens when diversity just seems like another word used to entice high schoolers to visit your campus? Will a 25% non-white campus be enough in the name of diversity? As a partnership, we have decided to explore these thoughts through one of the oldest creative writing forms; poetry. Poetry is the tool that can break down racial, gender, and economic barriers by surpassing logic and speaking straight to the emotions and passions of someone. We also feel that poetry is one of the basis of communication that is accessible and engaging enough for a whole community to relate to. Our creative process was as follows: as a partnership, we decided upon using poetry as the medium to share our feelings and ultimately our main message. We then separated ourselves from each other in order to reflect on our thoughts and observations of campus diversity without bias or interference from the other. We then came together to combine and polish our thoughts and translate them into the expressive poetic form. Various results can be consulted from this work, which is why it can be interpreted in many ways from any audience.

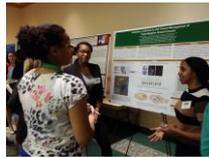
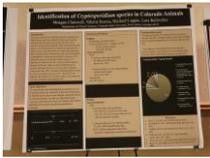
My Journey to Me

Jasmine Hope Zachariah

My Journey to Me is a compilation of 7 self-portraits that I have painted throughout my 4 years here at Colorado State University. Most of my pieces are painted on the walls and fixtures in my home in Morrison, Colorado. I began painting in high school because I wanted to know that I could reach out and touch my world-change it, and make it something different than what it was. Each piece was painted during a different stage of my journey, so they each reflect different sides of me. They are all signed with words- a quote or poem that was on my heart when I painted them. When I paint, I feel free and connected to my dreams. I do not begin the piece with a sketch or a plan. I like to let my soul out stroke by stroke. For this reason, my family were the only ones who knew I painted. But over the last four years, I have learned to be more open with my soul and to be proud of who I am and all I can create.



SERVICE LEARNING & LEADERSHIP ABSTRACTS



GPS: Providing Direction

Alexandria Johnson

It can be extremely hard for students who identify as black to grow up in Fort Collins, CO - a predominately-white homogeneous community. Looking around and being the only African-American on a daily basis, and to be in community with people who do not understand your being can be lonely and can ultimately affect how successful one will be. GPS (Giving back, emPowering, and Strengthening our culture) is a pre-college mentoring program for 3rd through 12th grade students. It strives to build unity among students who identify with the African American culture and live in Northern Colorado by supporting them while they are developing a sense of who they are and their potential while giving back to the Fort Collins Community. GPS is a program that allows students to engage with other African-American students in Northern Colorado and gain friendships with those who look like them while being mentored by college students through the Black/African American Cultural Center. It is my goal to learn how GPS has benefited former and current participants. I will facilitate surveys to see how GPS has affected current and former GPS participants in their development. This survey will also include questions on ways GPS can be improved while focusing on the areas of identity and community. In addition to my survey results, I will also share the structure of the program in totality and share quotes from Destination Leaders (mentors in the program) on how the program has also influenced them as they develop as college students. This program has been extremely successful, as we have had students from, not just Northern Colorado, but from Longmont and even Wyoming to join our program. If we can continue and grow our success, it may allow GPS to expand to other areas. It is with great hopes that the results of my survey will provide the Black/African American Cultural Center with significant information as they continue to enhance the offerings of GPS.

Find the Roots of Service: Transnational Solidarity and Ghana

Asble' Tate and Maya Cousins

In our project, we'd like to explore some of the important themes of service and unpack some of our experiences with service in Ghana. We will discuss the following relationships: power & privilege, history & service, slavery & service, teaching/guiding & service and how to use our experiences in Ghana as a guide to "world-travel" in the way that Mariana Ortega discusses in her work, "Being Lovingly, Knowingly, Ignorant". We will connect all of this to the concept of transnational solidarity. A unique part of our project is our use of digital humanities. Using code programs such as R and Voyant, we are able to display and explain these concepts in a way that is engaging and thought-provoking.

Inspiration from Mizzou to Changes at CSU

Vance Payne

During the Fall of 2015 there were many events within the United States with regards to social justice. Some of these events revolved around the climate at the University of Missouri. During this time tensions were high on the campus as student protestors were demonstrating against the university administration. At an earlier protest students interrupted a parade to highlight the history of racism on the campus. The president of the university failed to acknowledge or address the protestors. This sparked a heightened racial tension, including threats to the safety of students of color, a refusal to play from the football team, and the eventual resignation of the university president. These events inspired me to take action to show support for the students of color on that campus. Feeling the need to show this support in a strong and tangible way, I connected with Isaiah Martin, Kwon Atlas, and Ricky Herz. Through working with these individuals, the event further developed into an opportunity to demonstrate the need for change on Colorado State University's campus as well as the history of racism at this campus. To begin the event, we had the approximately 150 students, faculty, and community members gather at the CSU administration building. Once there, we had participants sign the banner with words of encouragement and support for the University of Missouri Students. We then took a picture holding the banner to demonstrate to the Mizzou students the support they have at CSU. Once the picture was taken, participants were led to the plaza. There we led a demonstration on how the university could improve upon the current support for Black students on campus as well as the history of racism at CSU and other universities. We gave six specific recommendations for the University to consider. Among the many people in attendance was CSU President Tony Frank. He was so moved by the demonstration that he issued an email response to myself and Kwon Atlas stating that he would review the recommendations that were given. As of today, the recommendations are processed and enacted by the university. One of the recommendations, to provide better mental health support for students of color, has already been addressed by the university. All of the recommendations are a direct result of the examples set at Mizzou and the inspiration I felt to support them and create change. Now that the recommendations are in progress, it is important to make sure we hold the university accountable to address these issues in a timely manner and in a way that gets to the root of the issue. Some of the recommendations given will need to be addressed more long term than others. It is important to keep up with these as they develop. There is also a need to review and adjust the recommendations to account for current situations.

SIS: Sisters in STEM

Marvella Riddick

As the president of Black Student Union in high school my goals were to mentor young black women in our predominantly white institution. Coming from a small, sheltered environment our sense of sisterhood was extremely powerful. In high school and in my short time here at Colorado State University (CSU), I have found a significant lack of support encouraging black women to explore STEM fields. From my experiences, creating a sisterhood of black women that will enable them to empower one another would be extraordinarily influential. Through the College of Natural Sciences Learning Community, K-12 Outreach and Social Justice Community, I used skills and lessons to formulate my own, unique outreach opportunity. My proposal is a program called SIS: Sisters in STEM. SIS is a mentorship program for young black women at Hinkley High School. The primary efforts include: expanding their exposure in STEM, providing guidance through the college search and application process, and creating familiar community here at CSU. This mentorship and college pipeline would have multiple facets including meetings twice a month between the mentors and students at varying locations such as at Hinkley High School, CSU, and across the Internet. Campus visit days and events will focus on major exploration and creating connections with faculty, staff, and students at CSU. This would include the Black/African American Cultural Center, the STEM colleges on campus, black women faculty in STEM on campus, the Alliance Program, and CSU admissions. A SIS student organization would be created at CSU for the mentors, and we would initiate those connections and engage with those different organizations and establishments. The unique preexisting relationship between Hinkley and CSU is through the Alliance Program. The Alliance Program reaches out to specific high schools, focusing on the pursuit of higher education, how to pay for education, along with various opportunities colleges can offer. With the many facets of the Alliance Program, as a student organization we can build upon these goals even further, and in an incredibly significant and more personal way. I hope to encourage the young women who come to CSU to continue pursuing and expanding the program by becoming mentors themselves. I strive to connect further with the residential learning community I am currently a part of, in addition to other STEM based learning communities across campus to create a place for the SIS mentees. Initial research involved talking to people in our community who are connected to Hinkley and/or the Alliance Partnership. I was told that given the high application rate and acceptance of Hinkley students, there is still a relatively low number of students who decide to come to CSU, and that retention starts before students even get here. Having connections on campus before students arrive makes success more tangible in the long run. Both admissions and Alliance strive to create the best environment for these students. I hope to build upon these systems and create a long lasting program based on direct mentorship, community, and most importantly sisterhood.



SOCIAL SCIENCE & HUMANITIES ABSTRACTS



The Power behind My Name

V Bellinger

The Power Behind My Name is a project meant to highlight the importance of one's name and pronouns for queer individuals. This research is important for presenting to the audience how impactful and significant our names and way that people refer to us are. We hear people say our names and pronouns so much that we don't really think about what people call us: until someone calls us the wrong name. The purpose of the study is to get input from queer individuals, about why the things they change about themselves is so important to be recognized and validated. In order to get input, I put together an open-ended questionnaire to send to participants in my research. The survey asked questions ranging from why a person settled on the name and pronouns they chose for themselves, to how they feel when people use the correct name and pronouns for them. I don't have enough submitted questionnaires to come to any concrete conclusion about how powerful a name and pronouns really are. However, I predict that participants will respond with an overwhelming positivity for being validated through being called by the name and pronouns they choose for themselves.

From Harm to Help: Stopping Sexual Abuse to the Women of Eastern Congo

Eunice Bemبissa

From Harm to Help: Stopping Sexual Abuse to the Women of Eastern Congo Women around the world have less choice in life than it is for men. Choices are severely limited to what the government, society, and the people (males) want for women. While violence against women is a common issue around the world, I have decided to do research and publicity based on violence against women in the Congo, a central African country, particularly in East of the Congo. The Eastern part of the Congo has been called the rape capital of the world. Over 200,000 rapes have been reported since war began over a decade ago, (Wallstrom, 2016) with many more rapes going unreported. Women are violated sexually, physically, emotionally, and mentally and yet this occurrence is considered normal. Girls are raped as early as age eight up to whatever age the rapist feels like, on a daily basis. Women and girls are sexually violated not only in their homes but at their workplace, including in mining areas, as well (Wallstrom, 2016). My goal is to share this issue with the public and to conduct further research into the abuse of women in the Eastern Congo. This issue is not often in the news or other public outlets despite the suffering of women in this country. As a native female Congolese, had I not had the opportunity to move to America at a young age, I would almost undoubtedly be a victim of rape as well. This makes the issue of violence against women even more important to me which is why I want to bring light and help to this issue. Through my studies in social work, I came to realize what I had escaped, and that is why I wanted to get involved in helping women as I learned that any type of violence is wrong. My focus went from marriage and having children to getting educated and sharing this information with the masses. I want to work with other organizations to help these victims. With that in mind, I did some research and found organizations such as Raise Hope for Cong, and particularly, Women for Women International, which is an organization created to help victims of sexual violence in Eastern Congo. I planned to do fundraisers, and organize events with other organizations, such as African Community Center (ACC) in Denver. In addition, I will network with local student organizations at CSU such as B/AACC, and Africans United, to establish an event through dance, panels and other students speaking about any experience related to sexual violence; whether it is in the Congo or other places. Lastly, I plan to reach out to other organizations that work against sexual violence against women to plan an event that will include presentations to teach people of things that they don't know happens on a daily basis. Because I have not yet been able to tackle this issue, these are my first steps into bringing the issue to light.

An Argument against Modern Social Activism

Andres Bothe

Beginning with Aristotle's *Protrepticus*, it has been a goal of western societies to root out and eliminate injustices, real or otherwise. Thus, the concept of social justice movements have been a staple of developed societies where such perceived repressions have no place. Campaigns such as the Women's Suffrage movement, the Civil Rights movement, and the Chicano movement espouse the importance of liberal ideals such as liberty and equality and are, as such, effective in conveying their message. In today's political climate, however, modern social justice activism has fundamentally failed in delivering their message as a consequence of their adoption of authoritarian practices. The resulting distrust and lack of support by the general public has been catastrophic for the success of modern social movements. It is imperative, then, to understand both the implications and severity with which this shift in dynamic has affected the perceptions of typical Americans toward social justice movements. Ultimately, the goal is to help restore social movements to the level of respect and power once held by definitively identifying practices hurting their legitimacy. To do this, a series of interviews must be conducted in order to determine student's views on modern movements such as Black Lives Matters and Healthy at Every Size. To determine the intensity of these thoughts, follow-up surveys would be orchestrated to find how strongly the aforementioned beliefs are held. Today, social movements are often not taken seriously due to authoritarian qualities and to convincingly diagnose the issues plaguing these movements would be instrumental in restoring the influence carried by social movements.

Critical Race Studies: Looking Behind the Mirror

Briana Compton

The purpose of this research was to gain an understanding about the current state of beliefs, attitudes, and emotions toward people of color by white students at Colorado State University. While this research was focused on gaining an understanding of whiteness and how it affects society as a whole, an emphasis was placed on the stories of Colorado State University students of all backgrounds. In order to accomplish this purpose, the narratives of several students on the main campus of CSU were gathered as they related to the everyday relevance or irrelevance of current events to important elements of our shared past, as well as to the development of self-concept and of one's place in relation to the social mainstream. This research project was part of a larger project involving interviews of a more broadly based sample of students and faculty that focused on collecting the life stories of the participants in order to critique familiar assumptions about race relations and conflict between groups in American society. This research also embraced an innovative approach to the study of race relations by involving research participants in the analysis of successive drafts and by including their thoughts and reactions to any conclusions in the final draft of the results. This methodology of gathering data calls for researchers to move away from the more accepted positivist approach for creating knowledge and to embrace a culturally appropriate research methodology that allows for the researcher and the participants to gather and analyze the data together.

Racism-Related Stress and Health

Daiszha Cooley

Acts of racism, or beliefs that race dictates or indicates superiority, are not as overt as they were in times of colonial American slavery. However, racism is still alive today in more subtle and discrete manners such as microaggressions. Microaggressions are commonplace comments, actions, or environmental indignities that intentionally or unintentionally express prejudice toward a marginalized group. Comments such as ‘Wow! You are so articulate!’ to a Black person or assuming that someone who is Asian can help with a math problem are examples of microaggressions. There are many studies that focus on racism from the perspective of the perpetrator, but it is important to understand the impact of racism for the individual on the receiving end. Experiencing racial discrimination of any kind can lead to stress and impact an individual’s psyche and functionality. Ignorance of the magnitude of impact contributes to society’s ability to ignore the problem and impedes progress. For this reason, I will utilize my Honors Thesis project to explore the impact of racial discrimination-related stress on mental and physical health. Using peer reviewed journal articles and databases, I will review current literature and evaluate existing knowledge to develop a model for the relationship between racial discrimination, stress, and health. Articles will be grouped by area of emphasis based on title and abstract content. A coding scheme will be created and utilized to categorize key concepts across all articles as they are read. A notebook will be used to log notes and key findings from each article. The findings will then be examined to construct plausible relationships between, racial discrimination, stress, and health. The proposed model aims to provide information to further the understanding of racial discrimination’s impact and to contribute to the reduction of its occurrence.

Parenting in the Black Community

Jhasmynne Cooper-Moore

As a Human Development & Family Studies student, during one of my parenting courses, I have often times wondered, why there is a difference in the way white children respond to their parents compared to how black children respond to their parents. I want to investigate whether cultural, racial, and/ or ethnic differences play a role, therefore, I will be analyzing research, and conducting a survey inclusive of CSU students surrounding parenting. I will be exploring parenting styles, and how they are applied within these two communities, the risk and protective factors that can influence parenting and the outcomes for children in these communities.

A Relationship Divided

Mariah Jordan

There are many qualities that can cause division in relationships (romantic or non-romantic): political ideology, religion, race, or social economic status. The past election had emphasized this very point. After the results of the election were publicized, many of us encountered challenges regarding with whom we should continue our close relationships. Our current sociopolitical climate has provoked ideas and practices of separation as opposed to unity leaving us the question: How can we remain united in our relationships despite differing political views? The purpose of this project is two-fold: (1) to bring awareness of the political elephant in the room that may be impacting our relationships, and (2) to present unification strategies that could be used in the context of a romantic relationship. A study was conducted with 15 unmarried, undergraduate students, who are currently in a romantic relationship asking about the challenges associated with being in a relationship with someone if they have opposing views, and how they would address that difference (if at all). According to Harvey, a lot goes into a relationship such as concern for each other's welfare, motivation to meet each other's needs, as well as the ability to meet those needs. Considering how we tend to date those who are similar to us, many believe that the political ideology should be matching element in a relationship. The current hypothesis is that those who communicate more effectively about politics in their romantic relationship feel more secure with one another compared to those that have a lack of communication in this area. By having that stability in their relationship may correlate to stability in other aspects of life. With these findings, one can hope to achieve unity within their romantic relationship as well as bring awareness to a topic that's not easily discussed.

Terror Management and Mental Illness

Kelly Kubn

According to the Anxiety and Depression Association of America, approximately 18% of the U.S. population suffers from an anxiety disorder, and approximately 6.7% of Americans at least 18 years of age or older suffer from a minimum of one major depressive episode, defined by DSM-IV. Anxiety and depression have a high comorbidity rate; nearly one half of those diagnosed with anxiety or depression are diagnosed with the other. Because there are daily reminders of mortality salience in everyday life, from social media and news to personal experiences, they may affect those suffering from an anxiety or depression disorder differently. In cases where psychological buffers may not be present, how do individuals cope with mortality salience, and how does it affect their mental state? Research by Hoyt et al. indicates that terror management theory can reinforce stereotypes; therefore, the question remains, is mortality salience different based on mental state? Studying terror management theory (TMT), how individuals utilize worldviews to lessen anxiety about the inevitability of death, and how worldviews are held by the consensus when mortality salience is present (Pyszczynski et al., 1996), can give insight on how to further treat depression and anxiety, and repair worldviews and self-esteem through specialized modality. In this study, I will first evaluate depression and anxiety using standardized questionnaires (Beck Depression Inventory [BDI] and State-Trait Anxiety Inventory [STAI]). Participants will be randomly assigned to one of two separate conditions that claim to evaluate reading comprehension. Eight excerpts from popular books are selected, and are separated into categories of elementary, middle school, high school, and collegiate/adult levels. The control readings contain no mention of death or mortality salience; the experimental readings briefly or subtly reference death. Comprehension questions follow each segment, and can be answered without prior knowledge of the reading. Afterwards, a survey concerning worldviews will be conducted, scoring how important the participant finds each, and will be asked to rate on increments of 10% what proportion of the population they believe agrees with their opinions. My hypothesis is that those who suffer from anxiety and depression will believe that fewer people agree with them, and will score worldviews as lower. If this is true, this allows researchers to reinforce the importance of worldviews, which will increase self-esteem and serve as a buffer against depression and anxiety. Because both anxiety and depression disorders have such a high prevalence in the general population, it is important to expand literature on different ways to treat these illnesses, and I believe this study may give great insight.

The Role of Support and Accountability on Recidivism Rates

Kelly Kubn

In 2016, results from an eight year-long study conducted by the United States Sentencing Commission were released, following 25,431 offenders released in 2005. Over the course of the study, nearly half of the federal offenders were rearrested, a third were reconvicted, and a quarter of offenders were reincarcerated. Many of the offenders who repeated crime did so within the first two years of release, the median time of rearrests being 21 months (USSC, 2016). The United States has one of the highest rates of recidivism in the world, and the justice system must evaluate what needs to be done to lower the rates of repeat offenses in the justice system, and to prevent continued overpopulation. In Canada, 1994, the very first Circle of Support and Accountability (CoSA) was founded to assist a sex offender that was being released from prison. This circle was comprised of volunteers that worked to support the released offender, and worked towards preventing a repeat offense, and the group was successful. Now, there are Circles established in the United States and the United Kingdom as well, prioritizing the reduction of repeat offenses in sexual offenders. Especially in crimes of violent or sexual nature, there is heightened difficulty in finding living arrangements, work, and even connecting back with family and friends prior to the offense. CoSA focuses on providing intensive support to keep criminals from repeating offense, and integrating them back into society. As case studies have indicated that many of these circles are effective in supporting the Core Member (the offender), we must consider the implications of expanding this kind of support network to different crimes. While there will be cases where the offender cannot be rehabilitated due to mental illness or psychosis, one study indicated a 75% success rate with offenders who were part of the Circles (Bates et al., 2012). My proposal is to expand this volunteer network to juveniles, especially in crimes of violent or aggressive nature. In many adolescent cases, family connections are weak or absent, and substance abuse is highly likely, a support group will be most impactful during ages of further brain development, but also in stages of the youth's life where impressions can still form. As many repeat offenders start at younger ages, I believe that by expanding the individuals who are eligible for CoSA's requirements to fit youth would be highly beneficial, and early intervention can play an influential role in recidivism rates. This study will closely follow that conducted by Bates et al., but the population will be juvenile delinquents who fit criteria similar to the CoSA requirements. By creating these Circles, and evaluating behavior, well-being, and adjustment over a period of twenty-four months (in the frame of time that offenders repeated offense in the USSC study), we hope to see results indicating lower rates of repeat offense or dangerous behavior, and increases in social positive behavior.

Progression of Black Oppression

Jordan Logan

Since 1619 when the first African slaves were brought to Jamestown, Virginia whites have kept their dominance over blacks by keeping them enslaved mentally and physically. Over time slaves were brutalized and dehumanized all to get the work of these African people. Blacks are still oppressed but not in the same way, so the question I am interested in investigating is have these acts of oppression changed over time and if so how? Overtime, there have been laws created to overrule Jim Crow laws but blacks remain oppressed through systems within our country, whether that be the education system, the prison system, and the housing system. In my presentation, I will be exploring the prison system and how it continues to oppress black people. Through my exploration, I will be addressing the war on drugs, over policing in black low-income neighborhoods, and how these two affect the high rates of the black prison population.

Raíces

Anarely Marquez-Gomez

PEW Research center reports that in 2008 over 360,000 removals were reported by Immigration and Customs Enforcement, 255,000 of which were of non-criminal immigrant violators. This very fact alone leaves the millions of unauthorized immigrants, even those without a criminal background, in the United States in fear. Immigrants fear the very systems that are created to help them; they fear applying for programs such as DACA, calling the police, or even asking for Dreamer eligible scholarships because they fear the consequences of revealing their status. The Center for Economic Development reports that twenty-five percent of [undocumented] workers reported their employers fired them in retaliation for complaining about inadequate worksite conditions. Immigrants are forced into a perpetual system of abuse due to a void in knowledge on the rights that empower them. That is what the immigrant community needs; information. Raíces provides this information via workshops in the Denver area; topics include, legal advice, Know Your Rights, Pathways to Citizenship, and mental health resources. All of this helps provide information and create a web of community allies within the Denver area. The program has had continuous success with a vast majority of attendees surveyed claiming they would return and learned something new about the immigration system. Currently Raíces is a community organization but we hope to expand and establish ourselves as a non-profit organization and provide workshops throughout Colorado and beyond.

Equality: An Idea that Remains an Idea

Whitney Marsh

Children learn discrimination from adults, they are not born with it. This demonstrates that we live in a society where negative perceptions of minority individuals are perpetuated and disseminated over time. The impact of society's ignorance toward discrimination is increasing the length of time that these issues are manifesting themselves in modern-day society. The purpose of this project is to inform the all individuals of the nonfulfillment of equality among ethnicities and genders in history as well as present day society. First, I will be addressing the Civil Rights Amendments, relevant court cases, and Acts that build upon the idea of equality among ethnic groups, then I will address the present-day discrepancies that federal courts allow to still exist. Afterward, I will address the Women's Movement that began in 1850 and continued through 1920; this is a significant event because it was influenced by the Civil Rights movement. Finally, I will discuss Feminism and the negative connotation associated with the movement. Throughout the project, I will answer how issues such as segregation in schools, ethnicity quotas in higher education, and gender wages and representation are still prominent issues in modern day society. I drew upon scholarly research gathered from the American Government and Politics textbook as well as political polls and federal oversight statistics for the foundation of this project. I then categorized the information into two sections: gender and ethnicity. For each section I compared historical statistics to present statistics to make an accurate representation of the issues that America is still facing. The amendments that were added to the constitution during both the Civil Rights Movement and the Women's Movement implemented the idea that equality is an obtainable goal. This over the years have proven to not be the case. Currently, both minorities and women are fighting and working toward being equally as valued in society as Caucasian men. Moving forward, I hope to see a decrease in the school district that are still under federal oversight as well as a decrease the in the gap of representation and earnings between men and women.

Space: Is There Any for Black Women?

Puleng Marutle and Kablea Khabir

Poems of each Black Woman Experience Black Woman in Black Spaces Black Woman in Women Spaces Black Woman in White Spaces An exploration of the unique experiences of Black Women through their expression in poetry and historical evidence. By using Black Feminist Thought we will build a framework for making sense of these varying experiences. We would like to stress the dangers of confining Black Women into singular spaces based solely on their gender or race, and push the need for space just for Black Women. Exemplifying the successful spaces for Black Women and how they are educating, healing, and transforming the Black Woman experience. As Black Women who are navigating their education in a predominately White space, it has become imperative for us to find ways to find these spaces and create liberation as well as healing for ourselves and other Black Women.

Food Insecurity on Campus

Kiri Michell

Food insecurity is a major issue on campuses around the country. I want to address this issue as it relates to CSU and the students and staff who are affected. The transition from Freshman to Sophomore years is difficult as well as living on your own and managing jobs, school, social life, and personal goals. I want to provide students access to healthy and fresh food and also giving out handouts and recipes and offering classes so students know how to use the food. Through my experience in the community and seeing how food insecurity affects my fellow rams, I want to address the issue by allowing for a "Freedge" and Tower Garden in the new Aggie Village Apartments. Currently, I am in the planning process of implementing the freedges in the buildings. I am also in the process of meeting with someone to start filling out grants to apply for Tower Gardens in the Aggie Village Food insecurity is a major issue around the country and does not seem like it would be a huge concern for college students. However, college students are greatly affected by this issue and can hinder their studies and personal health. I want to address this issue as it relates to the CSU campus and the students and staff who are affected. The transition from Freshman to Sophomore years is difficult due to changes that occur such as living on your own and managing jobs, school, social life, and personal goals. I want to provide students access to healthy and fresh food and also giving out handouts and recipes and offering classes so students know how to use the food. Through my experience in the community and seeing how food insecurity affects my fellow rams, I want to address the issue by allowing for a "Freedge" and Tower Garden in the new Aggie Village Apartments. Currently, I am in the planning process of implementing freedges in the kitchen area of the main buildings. I am also in the process of meeting with someone to start filling out grants to apply for Tower Gardens to put in Aggie Village as well. Since the growing season for produce does not begin until April, I am still planning out what seeds to plant on the plots of garden allotted at the Horticulture Center. This is the first year this will be implemented on campus, so there have not been any results so far. Ideally, I would like to expand the freedges and Tower Gardens to other places on campus to allow for more access from other students. Food is a simple but highly overlooked necessity and by working on this project I would like to help combat the issue of food insecurity on campus.

When you're Just another Statistic: Identifying Discriminatory Treatment Amongst Incarcerated Youth

Zelle Moore and Lyanne Kue

Recent statistics from the Office of Juvenile Justice and Delinquency Prevention of the U.S Department of Justice cite that a total of 73.6 million juveniles have been incarcerated and of those, a total of 33.2 million juveniles are ages 10-17. Caucasians make up 25% of incarcerated juveniles while racial ethnic minorities make up 20%. In Colorado, the population of Caucasians makes up 49.9% of juvenile arrests, as the juvenile arrests population of minorities is 50.2%. We would like to assess how racially motivated treatment manifests for male youth of color specifically in criminal juvenile institutions since there are very few research initiatives regarding race relations once juveniles are incarcerated. This research will help address the relationship between race relations and incarceration among male juveniles in Colorado. We look to define and assess fair and unfair discriminatory treatment as well conduct interviews and surveys in regards to their incarceration experience. We will allow the participants to self-identify themselves in regard to race. We will collect and compare personal accounts from Black, Latino and White male juveniles who were incarcerated in Colorado within the past five years. It is our hope that the eventual feedback will give insight to potential race based preferential treatment in criminal male juvenile institutions. Ultimately we hope to use this forthcoming information to determine whether the results are representative in penal systems in other locations and to, if needed, find ways to address the issue.

How Did Pre-Columbian Civilizations Use Animals in Their Daily Life

Maria Orosco-Martinez

Introduction: During this research the focus remained in three of the strongest civilizations before they were conquered- Incan, Aztecs, and Mayans. Each of their reigns were different due to the expansion of the Aztecs into Mayan territory and how the Incans were located in South America. The research conducted utilized historical information by varying authors in which they describe the methods that each civilization used in regards to animals. The largest civilization was the Aztecs and their interaction with animals was vast. All three used animals in similar ways while each had specific animals they held to a higher standard in regards to their religion and cultural beliefs. Significance of Topic: There is a historical and literal significance in the sense that explains the descriptions made by the conquerors of each civilization after they had conquered them. Historically the conquistadors looked down upon each civilization and described them as animals also and used the treatments inflicted on them as an excuse for how each civilization used their animals. Objective: I want to be informed and inform others about each civilization and their methods for using animals in daily life and how this in some way contributed to their demise. Methods: Used various databased to find relatable information in books, peer-edited journals and articles. Results: At the end of the research it was concluded that each civilization used animals in similar and different ways. One of the most important discoveries was the use of humans as a sacrifice in each civilization. Even though now humans don't think of themselves as animals much, it is certain that biologically speaking humans are mammals and they are in the animal kingdom. Each civilization depending on the animals used found them to be sacred even though they killed them for their gods. Each civilization had different ways in which they performed the killings and how they used each of the animal's remains. There were special rituals used but a similarity among all the civilizations was the use of the human sacrifice which was a discovery on its own.

Impacts of Decriminalizing Drugs in the United States

Ainissa Proctor

As a sociology student, I have been particularly interested in criminal justice and current issues within the system that negatively affect individuals and our society. During the last few decades, I have noticed mass incarceration of citizens due to the legality surrounding drugs. I will be analyzing existing data from the United States and comparing it cross-culturally as well as determining how the decriminalization of illegal substances might change the shape of the criminal justice system. I will examine the War on Drugs, and the repercussions it has had in the criminal justice system as well as the impact on mass-incarceration. My research question(s): How has the war on drugs been an ineffective tool implemented in the criminal justice system? What are alternatives that other criminal justice systems around the world use when it comes to drug use? I am aiming to provide a detailed analysis of the current situation of the United States in terms of the criminalization of drugs and hopefully include interviews with field experts to gain more knowledge on this topic. Wainwright talks about how the Latin American governments are steering away from the regime of prohibition and moving towards legalization. He discusses how it does not make sense to be fighting a war on cannabis and other drugs when just across the border in the U.S. it is legalized. This would take millions of dollars away from criminals and the cartels and the money would begin going towards business people. He has also stated throughout the book that there needs to be a larger focus on the decriminalization of drugs and rehabilitation of drug users, and not so much focus on the war on drugs. The article, *A Turning Point for Drug Policy* discusses there is a shift taking place regarding the international policies that have tried to control drugs. Many countries in the world have followed in the footsteps of the United States by taking a war on drugs approach that focuses on prohibitionist and punitive measures to deal with issues of drug production, distribution, and abuse. Youngers provides evidence that these measures are not effective in controlling drugs and that now several Latin American countries and even some politicians in Mexico are looking at other alternatives. An important step has been breaking the taboo that goes along with drugs and shifting towards a more public health approach than stigmatizing those who use. What impact does moving toward the legalization of drugs in some U.S. states have on the drug policies in Latin America and Mexico?

What are the Lived Experiences of Racially and Ethnically Diverse Healthcare Administration Employees at Colorado State University?

Avery Rothe

Being able to hear their stories will enhance the understanding of how the hospital administration field workers at Colorado State University. The significance of this project is to have a deeper understanding of the experiences of racially and ethnically diverse healthcare administration employees and what they go through while working in the healthcare field. The project will be able to show the different systems that play into the healthcare field. The goal of the study is to learn how the healthcare administration works at Colorado State University for racially and ethnically diverse employees. I am interested in researching this topic because this is an opportunity to learn more about the experiences of racially and ethnically diverse healthcare administration employees at Colorado State University and to better understand what role, if any, how does institutional racism play into their experiences in working in this field. I anticipate that racially and ethnically diverse people will have difference experiences depending on how they identify and their backgrounds. There might not be any institutional racism here at CSU because it is a university and it is a different setting. This might be different depending on the hospital that is being interviewing. Being able to find racially and ethnically diverse people could be a challenge because the CSU network is a smaller hospital and works differently than other hospitals. I want to be able to show the experiences of individuals at CSU working in the hospital administration field and learn more about the field in general.

The Real Meaning of Race

Abriyana Senter

This project will examine the idea that Americans presume to live in a colorblind society, focusing specifically on the resistance that occurs with the exclusion of black women and the push back experienced by African American males in Authority positions. Throughout history, African Americans had to fight to establish themselves in a white world. White men intended for African Americans to be slaves and unknowledgeable. White males had the privilege to obtain knowledge, and they kept it away from them as a tactic to stay in power. There are systematic structures that are set in place to keep the African American inferior in the United States. The goal of this research is to shed light on the systematic oppression African Americans face within the black community and in white America. While shedding light on this topic the main goal of this project is to educate society on the real definition of race. We would work with the local school system to implement some type of ethnic studies program so students are not learning history through a white lens. Hopefully, this will help people with their critical thinking skills and create a domino effect in society so younger generations are not too susceptible to discrimination. The end result of this research would ultimately create a way for students to learn about how race hinders us in society and break down the chains that have been holding minorities back for centuries.

First Generation Students: Resources and Academic Success

Adrienne Shabandarian, Lydia Gonzalez, and Annie Ngo

First generation students are gaining more opportunities to apply and attend college. These opportunities can be funded from pre-collegiate programs, mentor guidance and more access to resources; enabling them to be exposed to higher education. Having the chance to attend higher education as a first-generation student is a huge accomplishment for not only the student, but for the entire family. The purpose for this study is to reach out to those first generation and non-first generation students to see if there is a difference or correlation with being the first in your family to attend college and how it may affect their academic success. Our target population will be undergraduate first-year students that are either a first-generation student or a non-first generation student that attend Colorado State University. We will sample 60 students, 30 students being first generation and the other 30 students being non-first generation students. We will not focus on gender in this study. We intend on gathering data from students that live in the dorms. The reason for this is, because many first-year students are required to live in the dorms. The measure that we will be using in this study will be a 10-item survey that asks about their experiences and resources they have used during their first semester at Colorado State University. We will list several resources that are available to first-year students, as well as resources available to all students. A hard copy of our survey will be given to first year students we ask on campus and around Braiden hall. We will be reaching out to individuals we know as well as random students we run into. We will have the survey ready to go for the participant to fill out in person. In order for the participants to understand what is expected of them we will put a brief paragraph at the top of the survey to address what it is about. After all the data is collected we will put everything together and analyze the data we received.

Work/Family Interface: Views by Women in the Social and Physical Sciences

Rachel Audrey Surratt

Work/family conflict: Views of social- and physical-sciences by female graduate students Sophie Gullett, Ali Bentley, Rachel Surratt, Lilian Zhong, Kristen, Ben, Paul Johnson, Veronica Scherbak, Dorothy Haruyama, Ashlie Johnson, Brittany Bloodhart, Ph.D. Silvia Sara Canetto, Ph.D. Department of Psychology, Colorado State University Women are underrepresented in science, particularly in doctoral-level programs and professions. One explanation is that women view doctoral-level science education and professions as incompatible with raising a family, given the social expectation that women take primary family-caregiving responsibilities. However, work/family (WF) conflict is an issue for women across all long and time-intensive doctoral programs, and across all demanding professions. Yet not all doctoral programs and doctoral-level professions have a scarcity of women. For example, women are the majority among doctoral degree earners and doctoral-degree professionals in psychology, but a minority in atmospheric-sciences. As Mason, Wolfinger, and Golden (2013) state, graduate school is where students explore career paths and decide the positions to play within their families, so that academic choices change in scope. This study explored perceptions of WF conflict for women in psychology and in atmospheric-sciences graduate programs. Four female graduate students in atmospheric-sciences and four in psychology, all in committed heterosexual relationships, were interviewed about their perceptions of WF conflict in their field in general, and for themselves. The interviews were recorded and transcribed. Quotes pertaining to perceptions of WF conflict in general, and perceptions of WF conflict for themselves specifically, were extracted. Scores were assigned to the statements based on how positive or negative these statements were about the possibility to combine work and family. Our main finding was that women in psychology and atmospheric-sciences perceived WF conflict in similar ways. They both elaborated on the value of having a partner whose occupational goals and commitments were flexible. The main difference between the two groups was that psychology female graduate students mentioned female faculty role models who had, in their view, a full work and family life, while atmospheric-sciences students mostly commented on their search and wish for female role models of WF integration. These findings suggest that there may be overlooked commonalities in the experiences of women in doctoral-level social- and physical-sciences education and careers, with implications for theory and intervention.

Family Socioeconomic Status and Parental Education and Their impact on College Major Selection

Adiam Tesfaselassie

Majors are a great indicator of future jobs and earnings; therefore, college majors are associated with different risks of job prospects. This paper will examine what major students who are from families of low socio-economic status select. In comparison, it will also look at what major's students, who are from families of high socio-economics status, select. In addition, it will test the importance of parental educations and its impact on the selection of majors. Lastly, it will also look at the motive behind the decision making of selecting majors, among both groups. Socio-economic is the independent variable of this study, while college major is the dependent variable that will be examined in this study. Parental education status is an intervening variable.

Loss of Native Language by Second Generation Latinos An Empirical Report on the Loss of Native Language from Latinos/a's who moved from Mexico to America and have assimilated to the American culture

Victoria Villegas, Dianabi Sanchez, and Stephany Solis

The purpose of this study is to collect data on the loss of the Spanish language of Mexican Heritage by the second generation. First generation Mexican-Americans are usually taught English as their second language. They then teach their second-generation children English as the primal language. This connects to the loss of the Spanish language. This proposal will help Latinos understand the reasons behind the loss of their native language. First generation Latinos in this project will be the children of Mexican immigrants who were born in America. Second generation Latinos will be the children of the first generation who were also born in America. Methods used to gather data included ten interviews. Results dictated that 80 percent of second generation Latinos have lost their native language due to the fact that their parents taught them English first. The data collected supports the hypothesis of this study that teaching second generation Latinos English as their primary language aids in the loss of the Spanish language in future generations. In order to combat against this, it is proposed that first generation Latinos/as teach their children Spanish as their first language or encourage an environment of bilingualism.

Potential Environmental Damage Caused by Political Unrest

Amy Yung

The purpose of this project is to discover the link, if any, between the frequency of political unrest, defined as activities performed by citizens in response to general discontent with the government or its actions, and the well-being of the global environment in response to the growing number of political conflicts throughout the world and the degrading state of planet Earth. Due to personal interest in France, specific emphasis was placed on the conflict surrounding the Notre Dame des Landes (NDDL) airport, as one of the longest lasting issues in recent French history. This research compares long term data from France, a country in constant state of manifestations, to Switzerland, an industrially similar country and one of the most politically stable in the world within the last decade (The World Bank, 2015). Two principle sets of statistics chosen: the number of manifestations, strikes, or riots per year and the air, water, and soil quality of the same regions as the recorded political unrest. Data will be used to confirm or deny the hypothesis that more political unrest leads to increasing damage to our planet. Should the hypothesis that the environment is negatively impacted be true, research will continue in hopes of finding means of reversing the negative impacts in addition to effective means for citizens to voice their opinions in a less destructive manner in regards to the planet. Conversely, if the unrest does not prove to be harmful to the environment, new and innovative ways to facilitate citizen and government interaction towards preserving the Earth will be examined. Going forward we hope to continue to monitor the environment and potential contributing factors of environmental damage caused by human actions traditionally considered as not harmful.

Journey to the West

Arisson Stanfield and Mikaela Maldonado

Western psychology has been built off a medical model for better or for worse. The human body mind, and experience in general have been reduced to base line stats of perceived normality and deviance. As a result, modern medicine has become fascinated if not preoccupied with developing an ever-growing repertoire of treatments to combat the exponential growth of diagnosable conditions. A casual look at the past DSMs shows the clear fact that we have become a culture fixated with the idea of brokenness and locked an eternal endeavor to dissect and destroy it. The East however, largely devoid of the concept of Original Sin has taken a different approach to understanding the human condition. Although its philosophies are diverse a clear and evident theme running through them has been one of understanding in the place of judgment and certain moral pragmatism in the place of loft and unattainable goals. It is only now in this modern era that these modes of thoughts have begun to gain serious traction in Western scholarship. The world of Buddhism rich with unclaimed jewels and long forgotten treasures has become fertile ground for those who have seen certain failings in the aim and scope of Western Psychology. Buddhist concepts of mindfulness and meditation have not only become mainstays in popular culture but have also begun to be studied seriously in academia. As a result, every day we are discovering that Buddhist conceptions of emotion, suffering, and peace and the methods used to cope with negative emotion have been shown to be beneficial and revolutionary in the world of counseling. Therapies such as ACT and DBT are recent and efficacious approaches in the world of counseling and both are explicitly rooted in very Buddhist principles and understandings of emotion. For this reason, this project seeks to elucidate the degree to which Buddhism has begun to inform western ideas of health and counseling. By showing the clear benefits that can be gained from working outside a purely Western psychological frame work this project seeks to encourage academics and the population in general to rethink the way we think and to learn from the cultures around us.



SCIENCE, TECHNOLOGY, ENGINEERING, & MATH ABSTRACTS



The Efficacy of Spanking

Arisson Stanfield and Mikaela Maldonado

Ecclesiastes 4:1: So I returned, and considered all the oppressions that are done under the sun: and behold the tears of such as were oppressed, and they had no comforter; and on the side of their oppressors there was power; but they had no comforter. Since the dawn of time violence would seem to be an endemic and tragic element of human existence. Even a cursory glance at history grants one a glimpse into a world of intense suffering and frequent unnecessary violence. Perhaps mankind's most noble endeavor has been the pursuit of peace. Motivated by this spirit of virtue the world has been overturned time and time again in the name of peace. From the American antiwar movements of the 60's and 70's to the civil rights movements lead by souls as noble as Dr. King we have seen that there is a desire if not a need for peace to grow in this world and for violence to be left in man's primordial past. For this reason, it is essential that we reflect openly and actively on the way we interact and the way violence is preserved and perpetuated socially. From this reflection, we awaken to the evils of racism, patriarchy, class based caste, and religious sectarianism. All these evils however are substantiated through the same process: division and dehumanization. Through othering the group deemed vulnerable violence is legitimized and carried out under the silent consent of society at large or accompanied by the deafening cheers of cultural bigotry. Though we have confronted oppression on many levels we have neglected, regrettably, to recognize what is possibly the most vulnerable group in society that are still dehumanized and brutalized daily. This group is none other than our very own children, the group society often claims to care about and provide for the most. Yet this group more than any other has had violence against it normalized under the label of spanking. Fortunately for children everywhere we stand at the edge of yet another moral revolution. As anti-spanking laws begin emerging we see an active and engaged movement toward protecting children from the harms of abuse. It is in this spirit that this project seeks to confront the myth that spanking is an effective and acceptable method of discipline. This project will review the current literature available on the outcomes of spanking and elucidate the proof that spanking is nothing other than violence perpetrated and justified against those most vulnerable.

Cytokines and Their Relationship with IPF

Jordon Aragon

Idiopathic Pulmonary Fibrosis (lung scarring) is a progressive and fatal disease, affecting more than 100,000 Americans. Differentiation between macrophage phenotypes may be the key contributor to spontaneous fibrosis of the lung tissue present in Idiopathic Pulmonary Fibrosis. Macrophages polarize into M1 and M2 phenotypes. M1 macrophages respond to a classical stimulus (bacterial or viral response) while M2 consists of subtypes, M2a, M2b, M2c, M2d that aid in inflammation response and resolution. Our hypothesis is that M2 phenotypes M2a and/or M2b may play a role in the coagulation cascade that creates the fibroproliferation and scarring of the lung. The cytokines that cause fibrosis are TGF- β^2 and IL-10. Ym1 and IL-4 may contribute to this as well. Mouse macrophages were cultivated with fresh blood, fresh clots (2 hours old), or old clots (2-3 days old). Macrophages only phagocytosed old blood clots. Macrophages that phagocytized blood clots also accumulated fluorescent proteins, which may be Ym1 (which naturally fluoresces). Additionally, it was found that zymosan (yeast outer capsule) increased the fluorescence in the macrophages. Macrophage cytokine production is currently measured using digital droplet PCR (ddPCR) to indicate the presence of interferon- γ^3 , Ym1, IL-10, IL-17A, IL-4, and TGF- β^2 . Currently, we are comparing cytokine expression after several time points after incubation with blood clots (+/- zymosan).

Regulation of Melanosomes through TPC2

Keith Christian

My project involves studying melanosomes of human melanocyte cells; specifically, understanding the function of the protein TPC2 in melanosomes. Melanosomes are organelles located in melanocytes that produce and store melanin pigment. They hold the protein TPC2, which is important to study in order to better understand pigment regulation. Understanding TPC2 is also significant because pigment protects DNA against ultraviolet rays. The current understanding of TPC2 is that it is a multi-pass transmembrane protein and a two-pore sodium gated ion channel located on lysosomal related organelles. Polymorphisms of TPC2 regulate melanin concentration; however, many of TPC2's regulatory effects on pigmentation have not been proven. The lab I am working in currently has a paper with results on TPC2's regulatory effects on pigmentation published in the Proceedings of the National Academy of Sciences. Within the study of TPC2, my research objectives include proving TPC2 is located on melanosomes, discovering the effects of TPC2, and illustrating the effects of TPC2 polymorphisms. From my experiments, it has been shown that TPC2 is on melanosomes. One technique used to prove this was use of immunoprecipitation of TPC2-GFP in nucleofected MNT1 cells and immunoblotting for known melanosome proteins. The current research objective has been testing polymorphisms of the TPC2 gene. This is being accomplished some recently developed emGFP CRISPR cell lines of the TPC2 G734E polymorphism. Testing the effects of the G743E polymorphism is still in progress. However, these cell lines are being tested for melanin content as well as pH levels. Melanin content tests are done by solubilizing 500,000 cells and measuring melanin content against a standard curve. Testing for pH is done through inserting a novel live pH sensor called MELOPS into melanosomes and then quantifying MELOPS fluorescence intensity. MELOPS was created using a pH sensitive fluorophore (mNectarine) that has been genetically linked to the luminal side of a melanosome-specific transmembrane protein (OCA2) whose channel function has been inhibited by a single nucleotide polymorphism V433I. The methods used for pH testing include fluorescent microscopy, slidebook analysis, data analysis, nucleofection, and designing the pH sensor. The research on this project has found that TPC2 is located on melanosomes. It has also been proven that when TPC2 is knocked out in MNT1 cells, a higher concentration of melanin is found compared to control MNT1 cells. Similarly, if TPC2 is overexpressed in MNT1 cells, a lower concentration of melanin is found compared to MNT1 control cells. This research project has also helped to develop a novel method of detecting pH in melanosomes as well as shown that TPC2 knock out cells have less acidic melanosomes. These findings are significant because they have broadened our understanding of how TPC2 and melanin work, as well as developed new ways to further test TPC2's role in melanosomes.

Farm to Table: An Analysis of Food Waste & Recover

Raeven-Lynn Clockston

Food insecurity can be defined as the state of being without reliable access to a sufficient quantity of affordable, nutritious food. It is estimated that at the numbers of people experiencing food insecurity, and malnutrition have increased globally with the increase in population. Though there have been several proposed methods of decreasing food insecurity, the focus of this discussion will be on the decline of food insecurity through the reduction of food waste generated from farm to table. Food waste currently accounts for 31% of the total food supply in the United States of America. This equates to approximately 141 trillion uneaten calories per year, and a cost of 161.6 billion dollars in wasted food per year (Prescott, 2017). There are three stages of food waste that can be discussed, and six major forms of food recovery on the hierarchy. Food loss occurs before it arrives at the facility where it will be bought or served, during transportation and harvesting. The forms of food waste that are thought about more commonly take place in the pre-and post-consumer stages. Pre-consumer waste may include trim-waste, food lost in factories, overproduction, contamination, recall, spoilage, or expiration. Post-consumer waste may include food that is not eaten, is spoiled, thrown away, dropped, or forgotten about. If the amount of food waste were to decline globally, this would be instrumental in decreasing food insecurity, malnutrition, and reducing the amount of greenhouse gasses emitted into the environment. The environmental implications of greenhouse gasses emitted from wasted food are much more detrimental than the carbon dioxide that would have been emitted if the food was consumed. The amount of food waste generated can be reduced through source reduction, feeding hungry people, feeding hungry animals, and utilizing it for industrial purposes. It should be sent to composting, and landfill facilities as a last resort. With an ever-growing population, it is becoming increasingly important to find healthier, and more sustainable ways to feed everyone. This generation and generations to come are tasked with the challenges that come with feeding 7 billion people while simultaneously preserving the planet. The first steps are to conduct more research in this area, increase the amount of education surrounding these issues, and to adjust dietary behaviors upon reevaluation. Prescott, M. (2017, January 27). Food Waste. Lecture presented in CO, Fort Collins. Colorado State University

**Discovering the Patterns of Biological and Anthropogenic Activity
at National Park of American Samoa
Using Underwater Acoustic Monitoring**

Abigail Crowder

Acoustic monitoring is a non-invasive and effective method to characterize both terrestrial and marine environments. Acoustic monitoring provides insight into the presence and occurrence of species living or migrating through the region, ecological processes, and levels of human activity, which is known to negatively impact wildlife. The goal of this descriptive study is to understand patterns of bioacoustic activity in the marine acoustic environment of the National Park of American Samoa and provide a baseline of how much noise is occurring due to anthropogenic sources. In June of 2015, the National Park Service partnered with the National Oceanic and Atmospheric Administration to deploy an acoustic monitoring station in the waters off the island of Tutuila as part of a larger monitoring effort. The acoustic monitoring station recorded continuously for a year (June 2015-August 2016). The recordings were analyzed using visual and aural techniques to identify the presence of biological sounds and human-associated noise during the winter, summer, and fall seasons. Acoustic analysis software was used to visualize the data and notate acoustic events. The results identify the most common biological sounds and human-associated noise present in these waters, along with patterns of presence throughout the year. The findings provide a baseline understanding of the acoustical environment in the region and will be compared across a broader region. Additionally, the work can be used to inform future acoustic monitoring efforts and support management of anthropogenic noise in the park. Finally, interesting and unique sound clips will be used for park interpretation, raising visitor awareness about the importance of natural sounds and their preservation.

Endocytic Background and Overview of Sla1AAA Mutant Research

Lena Cuevas

Endocytosis is a cellular process used for controlled nutrient and hormone uptake, and is essential for the survival of eukaryotic cells. The plasma membrane or skin of a eukaryotic cell is completely turned over by endocytosis in approximately an hour, allowing the cell to adapt to the surrounding environment in real-time. Several papers have been published, including those by Robertson, G.A., and Norman, D. with evidence that mutations in endocytosis contribute to several inherited diseases, including heart disease, which is the number one cause of death in the United States today. A greater understanding of endocytosis could potentially lead to new treatment options in the future. This is a goal we work towards in the Di Pietro lab, where we map the protein pathway for endocytosis using yeast as a model organism. There are over 60 proteins working together in a set sequence to pinch off and internalize a vesicle. This process can be used to redevelop the topography of the plasma membrane and internalize proteins, as well as to uptake necessary nutrients and other cargo. Without the ability to endocytose, the cell would die. We study clathrin-mediated endocytosis, the most common pathway the cell uses to internalize a vesicle. In order to understand clathrin-mediated endocytosis, we must first focus on three essential proteins. Clathrin, a three-armed (triskelion) structure, polymerizes in a cage around the forming vesicle to which the protein Sla1 will bind. Sla1 acts as an adaptor, linking the vesicle to the clathrin coat. Actin then polymerizes and pulls the vesicle, pinching off and internalizing it. Our current project explores how a mutant form of the adaptor protein Sla1, entitled Sla1AAA, affects clathrin-mediated endocytosis. Previous research indicates that this mutant causes a delay in vesicle internalization by eliminating clathrin binding. This provides us with a new tool to investigate how Sla1AAA influences clathrin recruitment and actin polymerization. Our methods include genetically modifying these proteins with fluorescent tags and then monitoring the transformed cells under a confocal microscope. We then measure the intensity of tagged proteins to get a sense of their concentration, as well as how long they reside at endocytic sites. This data gives us insight for how proteins are recruited based on the order that they appear. Our mutant adaptor protein leads to the loss of the Sla1AAA- clathrin connection, which will slow down endocytic site formation and internalization. This gives us more time to determine recruitment details. We have observed that Sla1AAA causes a greater concentration of pathway proteins to be recruited, which we believe may be the cell's way of compensating for the faulty link caused by our mutant. So far our data would suggest that Sla1 binding may act as a checkpoint preceding vesicle internalization in the endocytic process. We hope that in gaining a greater understanding of the inner workings of endocytosis, we can contribute to a global library of cellular knowledge that may one day help to more effectively develop disease treatments.

The Easy Revolution

Angel de Jesus Martin

PURPOSE: The Easy Spoon is the first fully adjustable and customizable eating utensil of its kind. It is designed specifically for the millions of people suffering from disability caused by strokes, arthritis, muscular dystrophy, Parkinson's and others. The World Health Organization stated that in 2014, 5 million stroke sufferers were left permanently impaired. This invention will help bring victims renewed autonomy and reduce their dependency on others. Beyond strokes, the availability of different utensil attachments makes the Easy Spoon the product of choice for medical centers treating those with contagious diseases. A patient may use the Easy Spoon, customize it to their needs, and dispose of the attachments safely and sanitarly. The Easy spoon is a multi-use device that empowers victims through regained independence and control of their lives. **DESIGN:** The invention is a two-part device. The handle is made of ergonomically-shaped, dishwasher-safe plastic with a soft rubber covering. Attached to the handle is an adjustable spoon, or other eating utensil that can be curved, allowing continuous use of the Easy Spoon without fatigue. The top of the handle houses an adjustable locking mechanism that allows multiple Easy Spoon brand heads to be attached, rotated to desired angle, and locked into position. These heads will include spoons, forks, and knives. The full range of motion for the Easy Spoon is 240 degrees allowing for left or right hand use. The bottom of the handle features rails that allow handle coverings to be locked in place. **MARKET ANALYSIS SUMMARY:** The main competition is the Easie Eaters Curved Utensils from ARK Therapeutic Services, Inc. which have an average retail price of \$10.00. Other competitors' products range from \$3.00 to \$20.00. **COMPETITIVE ADVANTAGE:** The Easy Spoon is fully adjustable and features replaceable heads, something no other product on the market currently has. Mass production of attachments will keep price down and make the overall product more affordable than competitor products. Also, the weight of the Easy Spoon is 25% lighter than competitor products. This invention can be used in the home and benefit patients in every hospital, clinic, nursing home, across America, and eventually the world. **Methods:** To generate my Easy Spoon prototype with plastic and metal attachments, I learned how to use 3D modeling software to give the Easy Spoon a digital form. Then, I learned how to use a 3D printer by attending training from CSU's Idea 2 Product program. Afterwards I used the 3D printers in Idea 2 Product to rough-print my design. In addition, I printed a spoon, fork, and knife attachment along with display hangers. All 3D printed items were given an acetone vapor bath to smooth out and polish the rough print. For the metal spoon, fork, and knife attachments I modified metal utensils I had at home. First, I sawed off the excess metal handle, shaping the ends to fit into the Easy Spoon handle's locking mechanism. Then, I laser-etched my AI logo onto the items and sanded the metal to a mirror-like polish.

Effects of CD21 against Prion Aggregate Accumulation and Mouse Neuroblastoma Cells

Elizabeth Gordon

Prions are infectious misfolded proteins that cause fatal neurodegeneration in mammals, including humans. Accumulation of these proteins leads to insoluble fibrillar deposits broadly known as amyloid plaques. These plaques lead to brain diseases such as Creutzfeldt-Jakob disease in humans or Scrapie in sheep. These infections generally have symptoms such as behavioral changes, cognitive deficits and impaired motor skills. In the immune system, CD21 is essential for proper B cell function and plays an important role as a co-receptor by reducing the threshold for B cell activation during antigen recognition. CD21 also promotes B cell receptor translocation into lipid rafts, which further enhances signal transduction. Recent studies show CD21 is involved in prion immunology by having a high affinity for the prion protein (PrP). However, when CD21 is eliminated from the cell, less PrP aggregates accumulate. Since CD21 has such a high affinity for PrP, it binds to the protein on the same cell and surrounding cells; consequently leading to more misfolding. In this project, CD21 is tested as a possible competitive inhibitor against other infectious PrP (RML5) in mouse neuroblastoma cells (N2A) to reduce the aggregate accumulation. By using in vitro infection and western blot analysis, CD21 was shown to prevent prion concentration. Future experiments will include investigating the ability for CD21 and other co-receptors to attenuate prion pathogenicity and further amplification in an in vivo mouse model.

A Literature Review of SMYD2: Overexpression, Diseases, and Inhibition

Lilia Maeda, Chiara Flores, and Kalene Borrego

SMYD2 is a member of the SMYD family of proteins which is characterized by the presence of both a SET and MYND domain and its role as a lysine methyltransferase. More information is available in regards to the functions and interactions of SMYD1 and SMYD3, however the function of SMYD2 has yet to be fully discerned. This is concerning considering that current literature implicates SMYD2s presence in several types of protein interactions and its overexpression is often associated with various types of cancer including gastric, pancreatic, and leukemia where it acts as a common marker for poorer prognosis. SMYD2 was originally identified as a histone lysine methyltransferase, specifically methylating histone 3 at lysine 4 and dimethylating histone 3 at lysine 36. Additional targets later included tumor suppressors p53 and retinoblastoma, as well as estrogen receptor alpha. Reducing the expression of SMYD2 has shown to be beneficial, therefore we conducted a literature review in an attempt to better pursue avenues of SMYD2 inhibition. These methods could potentially lead to the development of therapeutics to directly target SMYD2 and therefore reduce cancer-causing cellular proliferation. Our objective is to review current literature in order to determine the pathways most affected by SMYD2 where targeted inhibition could be specifically directed. We used peer reviewed, open access journal articles and databases to compile information on SMYD2 in order to categorize articles according to SMYD2 expression, involvement in disease states, and its protein interaction. Our research indicates that the elastic nature of the active site, demonstrated by Jiang et al, makes it a less favorable inhibition target therefore, we propose targeting the cofactor pocket with a small molecule inhibitor which could be engineered to possess a higher binding affinity than SMYD2's customary methyl donor S-adenosylmethionine (SAM). While inhibition may be achieved at the cofactor binding site, it may also negatively impact other methyltransferases which rely on SAM. LLY-507, as reported by Nguyen et al, is an inhibitor targeting the active site that is highly selective for SMYD2 with limited interactions with other proteins which may alleviate potentially negative impacts our proposed inhibitor might introduce. Acquiring LLY-507, however, would allow us to investigate the specific pathways and linked diseases such as the hematopoiesis to provide insight into how it affects immune system cells and thus cancers arising from the overexpression of SMYD2 down this pathway. Ultimately, there is more research to be done in regards to the function, diseases, and inhibition of SMYD2.

The Determination of Reactivity in Particulate Matter from Honduran Cookstoves

Luna Martínez

Toxic particulate matter (PM) containing transition metals, quinones, and other organic matter in the air has been documented to have wide reaching human health effects including low birth weight, respiratory illness, and cardiovascular disease through oxidative stress. The Colorado State University Honduras Stovetop Project has identified that traditional cooking methods in Honduras emit large amounts of this reactive PM. To determine the level of personal exposure, PM samples were collected on filters from stationary sampling instruments near stoves in Honduran households. Samples were also recorded through personal air samplers worn by the resident. An absorbance assay using dithiothreitol (DTT) is a commonly used method to measure the oxidative potential of particulate matter. The assay also simulates the severity of human health hazards associated with air quality. This study utilizes electronic absorbance spectroscopy to monitor the rate at which DTT is oxidized as a function of mass of PM. 250 unique filter samples are currently analyzed in triplicate, and compared against appropriate control samples. Once complete, the PM masses measured will be related to exposure differences in households using traditional versus updated cookstove systems. The data will also be corroborating a concurrent electrochemical study for measuring DTT. To date, the data suggests that reactive PM is indeed present in these filter samples and Honduran residents are being exposed to toxic PM. This study also supports the use of cheap and fast electrochemical measurements as an alternative to traditional electronic absorbance spectroscopy methods.

Dismantling the Stereotypes Associated with the "Pit Bull" Umbrella

Michelle Mendoza

It is widely, and erroneously, accepted as fact that Pit Bulls are dangerous dogs. Firstly, it is important to distinguish that the name Pitbull is not an actual breed; rather, it is an umbrella term used to describe the American Pit Bull Terrier, the American Staffordshire Terrier, the Staffordshire Bull Terrier, and any mix thereof, or any dog that presents with the physical attributes of these breeds. According to the ASPCA, there are approximately 3.9 million dogs currently comprising the shelter population of the United States. Each year, somewhere around 1.2 million of these dogs are euthanized, with almost 40% of these being dogs that fall under the Pit Bull umbrella. More often than not, this practice is employed by shelters not as a matter of eliminating dogs with behavioral issues, or due to failed attempts at rehabilitation. Instead, the vast majority of these cases result from overcrowding of shelters. The general consensus for some years has been that there is some biological or physiological component that causes these dogs to be aggressive without provocation, or to attack without warning. The goal is for the results of this project to disprove myths surrounding the falsification of scientific findings as a tool for supporting the accepted stereotypes and breed-specific legislation that have resulted from the propagation of this information. The research conducted in this study draws from multiple professional sources in the veterinary field, as well as data supported by doctors of physiology and behavioral science. This study also will involve a modified version of the American Temperament Test Society's evaluation exam. Normally, this test measures various aspects of temperament in different breeds of dogs, including shyness, stability, friendliness, and protectiveness. In the place of performing the test with dogs already accustomed to a specific handler, the test administered for the purpose of this study will measure responsiveness of shelter dogs rescued within the past six to eight weeks. The evaluation is currently slated to involve three active breed dogs: one American Pitbull Terrier, one Boxer, and one Beagle. The results of the exam will compare each dog's response to unfamiliar stimuli, affinity for resource guarding, loose-leash walking, affection, and command responses. Testing will be supervised by an experienced employee of the shelter, however to maintain a controlled environment, that will be the extent of their involvement.

Examining Isoforms of Poly (C) Binding Protein 4 via CRISPR/Cas-9 Mediated Gene Editing

Gustavo Ontiveros

Lung cancer accounts for approximately 1 out of every 4 cancer related deaths. Patients with early stage lung cancer frequently experience loss of heterozygosity (LOH) within chromosome 3p21. Contained in this chromosomal region is PCBP4, a nuclear and cytoplasmic protein containing tumor suppressor activity. When there is LOH not only is reduced expression of PCBP4 observed, but an alternative isoform, PCBP4a is expressed at higher levels. The loss of one PCBP4 allele in lung cancer cells allows for alternative splicing that favors the shorter PCBP4a isoform, yet no cause for the splicing switch has been determined. The PCBP4a isoform differs in location and function from PCBP4 as its located primarily in the cytoplasm and elevated expression is correlated with tumorigenesis. This starkly contrasts with the tumor suppressor activity of PCBP4. We will determine whether loss of heterozygosity of the PCBP4 gene alone will be sufficient to lead to the splicing switch from PCBP4 to PCBP4a. We hypothesize that if there is a decrease in the amount of PCBP4 after loss of heterozygosity it may tend to favor the PCBP4a isoform if PCBP4 regulates its own splicing. Heterozygous knockout PCBP4LOH HeLa cell lines will be created using the CRISPR/Cas-9 mediated gene editing system as proof of mechanism. Two guide RNAs (gRNA) and a mutant Cas9 (D10A) enzyme will be used to target the coding region of the beginning exons of PCBP4. The double stranded break produced will then be replaced/repared by a D05 donor plasmid through homology directed repair. The gRNAs that will guide Cas9 to produce a double stranded break at the beginning exons of PCBP4 will utilize a pLX-sgRNA vector plasmid to target the PCBP4 protein coding sequence. The assembled D05 donor plasmid and the Plx-sgRNA plasmid will be transformed into DH5- $\hat{\pm}$ Escherichia coli cells plated on LB-Amp plates. Viable colonies cultured overnight will produce multiple copies of the plasmid to be isolated through a maxi prep. Both the mutated Cas9 and gRNAs will be produced by the host cell's machinery through the use of different promoters in the plasmids whose concentration will be measured by nanodrop. HeLa cells will then be transfected using the CRISPR/Cas9 system. The transfected HeLa cell lines will be analyzed using digital droplet PCR with primers to quantify each isoform. To validate these changes at the protein level, the PCBP4 isoforms will be quantified (and localized) using cell fractionation, western blotting, and immunofluorescence using isoform specific antibodies. Currently our gRNAs are being validated for efficiency and the D05 donor plasmid is being designed/assembled. gRNAs for PCPB2 are also being designed for an adjacent study.

Autism at a Molecular Level

Mabdi Ramadan

Today there are millions of children with autism. Autism is defined as a mental condition that causes social malfunctions within a child's lifespan. There are many causes that result in the diagnoses of autism. The reasons why autism occurs can vary from prenatal issues, such as lack of oxygen in the womb, to viruses attacking the body. This is very critical to having a better understanding of autism and the spectrum of autism. My projects will result in a collection of data that will be comprised of specific sequences of DNA that are linked to autism. The objective is to learn the core understanding of how autism works to determine the features of autism in the outcome. This will be tackled by considering how autism may appear in DNA, making sure to analyze the difference in autism's abnormal DNA structure to a normal DNA structure. The data will show how the genes cause the brain to form the lack of structures that result in the symptoms of autisms.

Using Case Studies and Communications to Minimize Chances of Misdiagnosing

Mohammad Ramadan

Communication & Diagnosis: A Case Study Review When we are feeling sick we go to physicians looking for answers whether it's a prescribed drug or a surgery that cures us from our illness and the worries. In many ways physicians bring comfort and satisfaction with their conclusions and treatment plans, but sometimes our confidence in a physician's ability to diagnose us becomes greater than the outcome. According to a study done by BMJ Quality & Safety, 12 million outpatient patients were misdiagnosed. That's about 1 in 20 people in the United States, this is equivalent to 5 percent of the population. Out of these misdiagnosis 28 percent are life threatening cases. Using previous case studies as an index helps physicians compare a case at hand, to develop strategies for the most accurate diagnosis. But what can be much greater aid to a physician is communicating with patients and loved ones to have a better understanding of what the patient underwent before symptoms occurred. When I was given the case study of a 27 y/o medical student, who was brought to the emergency department in a stuporous but conscious state by his roommate with a high fever, the first thing I did was take the patient's vitals. The reason I did this was to have a better understanding of what the important internal organs were doing. This was done to prioritize what part of the body needed to be looked at first. After the data was collected, I start asking the roommate questions that may be looked at as general questions, but are very beneficial. The questions looked like; did the patient travel in the past month? If so, where to? As well as what did the person eat before the onset of symptoms, and so on? Quickly I concluded that was the patient was showing symptoms of dengue fever. The evidence I used towards the diagnostic was, the patient had gone to Mexico earlier and with his dad. His dad had gotten sick but recovered after the trip. As the patient's father got better the patient started showing the symptoms. Both the father and patient had been exposed to mosquitos. Because of this the patient had present purpuric lesions on his body. I ordered the blood test DENV Detect Igm capture ELISA, it came back positive for dengue. If I had not asked questions and communicated with the patient's roommate, I would have assumed that it was an allergic reaction or shingles, or even a common cold. If I were given the same case I would have continued to follow the steps I took earlier to diagnose the patient with dengue fever or similar diagnosis.

The Contributions of Dynein to Spindle Assembly Checkpoint Silencing

Gabriela Ramirez

Accurate chromosome inheritance during cell division is necessary for the development and maintenance of all organisms. Failure to properly segregate genetic material results in the generation of aneuploidy cells (cells with too few or too many chromosomes) which is lethal or associated with disease states such as infertility and cancer. Thus, cells have developed an elegant surveillance system called the Spindle Assembly Checkpoint (SAC), which suspends the initiation of anaphase, the separation of chromatids into opposite cells, until all the chromosomes are positioned to be equally inherited. The SAC monitors attachment of spindle microtubules (MTs) to large protein complexes called kinetochores (KT), which reside at the centromere of each chromosome. When all KT's are bound by spindle microtubules, it is crucial that the SAC is silenced so that cells can resume and complete the cell cycle. SAC silencing is less understood but it is known that the molecular motor protein dynein is important for silencing by physically removing SAC proteins from KT's and carrying them towards the spindle poles by walking down spindle microtubules. We aim to identify the SAC proteins that are removed by dynein in order to understand how dynein contributes to SAC silencing. Here we explain a new *in vitro* system we have developed to explore this question. We believe that utilizing an *In vitro* assay we will yield novel results regarding what cargo dynein transports. We intend to use purified chromosomes tagged with individual components of the SAC to identify bona-fide dynein cargo, and the manner in which these cargos are transported down the microtubules of the mitotic spindle. Thus, understanding the mechanism of SAC silencing will be beneficial for the development of a potential therapeutic drugs.

Production, Detection and Isolation of Prion Specific Camelid Nanobodies: Implications for Prion Disease Therapeutic Options

Savannah Rocha

B-lymphocytes produce highly specific heterotetrameric antibodies when challenged with antigen. Most species produce antibodies composed of four polypeptides, which consist of two heavy chain domains and two light chain domains. Each domain contains a variable region and a hyper-variable region, which allow for specific interaction with the antigen that the antibody was produced against. However, Camelid sera contains both heterotetrameric antibodies as well as functional single chain antibodies that are devoid of variable regions and derived from the heavy-chain variable (VHH) domains on Immunoglobulin (Ig) molecules. VHH antibodies are smaller than heterotetrameric antibodies found in other species. Nanobodies are the cloned portion of the Complementarity Determining Region (CDR) of VHH antibodies and due to their antigen specificity and reduced size, may be useful for research, diagnostics and therapeutics. We therefore sought to create libraries of the cloned nanobodies against various species of the prion protein. After seven immunizations with recombinant white tailed deer, feline, bovine and human PrP^C, we detected reactive sera against these PrP immunogens using ELISA. Antibodies that were extracted from the later time point sera have shown a reciprocal titer of 128,000. We amplified mRNA sequences encoding CDRs from VHH antibodies by utilizing RT-PCR and have inserted them into a phage plasmid by using unique, engineered restriction enzyme sites. We plan to identify, isolate, clone, and produce PrP specific nanobodies that can be used for future research into prion pathobiology, diagnostics and therapeutics.

A New Experimental System to Investigate Mechanisms of Cascading Chromosomal Instability

Brissa Santacruz

Chromosomal rearrangements leading to copy number variation (CNVs) are the genetic source to many diseases in humans, including cancer and autism (Stankiewicz and Lupski 2010; Malhotra and Sebat 2012; Ciriello et al. 2013). CNVs are formed after a chromosomal DNA double stranded break is repaired incorrectly. A particularly damaging type of CNV is called half-crossover initiated cascade (HCC), which results in an accumulation of multiple sequential chromosomal rearrangements (Sabatier et al. 2005). In this project, we will test the hypothesis that by disturbing the normal DNA double strand break repair pathways or perturbing DNA replication can increase the basal rate of HCC formation. A budding yeast cellular model system was designed and built to specifically detect the presence of HCCs. We will use these test cells to ask whether mutating any one of three genes (POL3, POL32, and PIF1) involved in genome maintenance processes can increase the HCC rate. In addition, we will ask whether DNA replication stress also plays a role by exposing cells to hydroxyurea (HU). The unexposed wild type cells will be our control group. The treatment groups will be the cells with mutated genes or wild type cells exposed to HU. After some time of growth, the control and treatment cells will be compared to measure the difference, if any, in the accumulation of HCCs. If our hypothesis is correct, we should observe a higher rate of HCC formation (measured through the presence of lysine prototrophic cells) in the mutants and in HU exposed cells. This experimental approach will help us discover and characterize the molecular pathways leading to HCC formation. This should be very helpful for further understanding the underlying causes to mutations in genomes that trigger cancer and autism in humans.

A Meta-Analysis on Stress: Causes, Symptoms, and How to Cope

Selam Werede Tenabade

If people can count on anything in life its taxes, death, and stress. There have been several studies on stress. Stress is a response that people have when confronted with stimuli that disturb their homeostasis. It wasn't until the 1950's until scientists began to look at how stress can affect a person's health. Selye in 1956 theorized that stress went through three stages. The first was the alarm stage where the stressor is first recognized. The second stage is the resistance stage where the body tries to resist the initial stressor. The final stage is the exhaustion stage. Selye believed that illness and death came from people being in the exhaustion phase for too long. The causes, symptoms, and how to manage stress better. This research is changing the health industry by causing health providers and professionals to use the biopsychosocial model of health to look at the entire patient, not just the disease. The combination of the results of these research studies in a meta-analysis may provide sufficient information to aid with findings about what stress does to the human body and the best ways to cope with stress. To be included in this meta-analysis, trials must have been conducted on adult participants, must have been conducted by or before 1960, and must have been published in a peer reviewed scientific journal. I believe that it is important for all of the studies to have been performed on adults because adults have been exposed to enough stressors in their life that the adults will have a consistent reaction to stress. It is important for these studies to have been completed after 1960 because as I had said before, major theories on how stress affected the human body and health didn't come to light until the 1950s. Lastly, I believe it is important to gather research studies from peer reviewed scientific journals because I believe that I will be able to consistently be able to find well conducted and ethically sound studies. The last requirement that will be placed on studies in order to be included in this meta-analysis is that researchers measured Physiological measures to measure the stress of an individual, rather than self-reporting. Physiological measures can be more reliable than self-reporting because people can lie, exaggerate, or underplay stress that they are experiencing with self-reporting. However, with physiological measurements comes medical equipment to check heart rate, breathing, blood pressure, etc., and these tools can cause a person to feel stress. Identification of trials was conducted with computerized searched through scientific, peer reviewed journals, and hand searched through relevant books and encyclopedias. Its anticipated that stress will be found to have an effect in lowering/ weakening a person's immune system. It is also anticipated that engaging in stress coping techniques that are focused on problem solving will lower the stress a person is experiencing.

UV-B Radiation Effect on Sweet Potato Plant Leaf

Hermela Tuquabo

Sweet potato cultivars have a strong adaptability to various environmental conditions (Martin 1988), and as the seventh major food crop in the world (FAO 2009), its contribution to the world's economy will only increase with time. However, with increased concerns of climate change, UV-B radiation is predicted to increase with increasing global temperatures. Increased exposure to UV-b can have extremely negative effect on biological organisms, and there has been little research on the effects that it may have for sweet potatoes. An experiment was conducted to examine if higher UV-B radiation will influence sweet potato root initiation and development. The experiment was conducted in the soil-plant-atmosphere units (SPAR) at the R.R Foil Plant Science Research center, Mississippi State. Three levels of UV-B (0, 5, and 10 kj/m-2d-1), all in separate units were radiated onto 18 plastic pots that consisted of six of each of the three cultivars (Beauregard, Louisiana and Harrctus). For this analysis, I will be looking specifically at the effects on leaf thickness. 90 leaves were measured, 30 from each level of UV-B radiation. Each leaf was measured at the four different places from leaf sections: the palisade, mesophyll, upper epidermis and lower epidermis; at least five measurements of each section was made. From there, mean average lengths will be used in a two-way ANOVA test using R in order to compare the differences among the cultivars and between them as well. I hypothesize that as UV-B radiation is enhanced, average leaf thickness will increase, specifically in the upper epidermis.

Notes

MURALS Schedule

9:45a – 10:15a	Registration and Poster Set-Up	Grand Ballroom A
10:30a – 11:45a	Workshops	LSC 308, 310, 312
12:00p – 1:00p	Luncheon	Grand Ballroom A
1:15p – 2:15p	SESSION I PRESENTATIONS	See page 5
2:30p – 3:30p	SESSION II PRESENTATIONS	See page 5
3:45p – 4:30p	POSTER GALLERY	Grand Ballroom A
5:00p – 5:30p	Awards Ceremony	Grand Ballroom A

