2018

2018 Student Research and Creative Works Symposium Program

Eastern Washington University

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Russell Kolts has been a member of the Psychology Department at EWU since 1999. He earned his doctoral degree in Clinical Psychology at the University of Mississippi. Over the years, he has conducted research on trauma, anger, compassion, and psychopharmacology. The main focus of his work is Compassion Focused Therapy (CFT), and the application of CFT both inside and outside of the therapy room.

“Knowledge speaks, wisdom listens”
-Jimi Hendrix

QUESTIONS? EMAIL: ewusymposium@ewu.edu

People needing accommodation should contact the Symposium Coordinator seven days prior to event at 509.359.6826 or ewusymposium@ewu.edu
Welcome to the Student Research and Creative Works Symposium

As an Associate Dean of the University College, I would like to welcome you to this year’s symposium week. Here at Eastern Washington University, undergraduate/graduate research and creative works take center stage each spring as we celebrate the collaborative work of students and faculty. This symposium brings together some of our brightest and most talented young scholars and artists; we congratulate you on all you have accomplished.

A great deal of effort goes into an event of this magnitude. The university is grateful for the tremendous dedication of faculty and staff mentors and the work of EWU’s Student Research and Creative Works Symposium committee. We hope that you will take the opportunity to not only share your own research or creative works, but also participate fully in this Symposium by attending other presentations, creative performances and exhibits, and the keynote presentation.

Undergraduate/graduate research is considered a high impact practice initiative. One of its foremost benefits is the mentoring relationship established between students and faculty to provide advanced opportunities for learning. It is this relationship and the commitment of the faculty mentors that make these projects such an important part of student success. Additionally, it is well-recognized that participation in the arts lends itself towards enhanced critical thinking, communication and creativity. Thank you – faculty - for everything you do to support both of these areas.

We are excited you are here and hope you take full advantage of the opportunities to network with, and learn from, the presentations and performances of your fellow students and peers.

Sincerely,

Dr. Charles Lopez
Associate Dean
University College

Learning Outcomes for EWU’s Student Research and Creative Works Symposium

By attending and presenting research/creative works to a wider audience students will:

1. Think critically about their learning experiences.
2. Demonstrate increased confidence in their ability to perform academically or artistically.
3. Express the importance of sharing research critical to our community, nation, and the world, and give examples of ways that creative works contribute to society as well as personal growth.
4. Identify gains in core literacy skills (Ex: thinking critically, quantitative reasoning, public presentations or performances).
DAY ONE STUDENT CREATIVE WORKS
Tuesday May 15th, 2018 [4:30 p.m. – 8:00 p.m.]

Fine Arts Complex

4:30 p.m. Welcome & Presenters Check-In Begins: Fine Arts Building, Lobby
4:30 – 7:30 p.m. Appetizers and Refreshments: Fine Arts Building, Lobby
4:45 – 5:15 p.m. Art and Design Exhibits: Fine Arts Building, Gallery
5:15 – 6:05 p.m. Music Composition Presentations: Fine Arts Building, Gallery
6:00 – 8:00 p.m. Creative Writing/Interdisciplinary: Fine Arts Building, Room 116
6:00 – 7:00 p.m. Theatre Presentations: University Theatre
7:00 – 8:00 p.m. Film Presentations: Radio-Television Building, 123

DAY TWO STUDENT RESEARCH
Wednesday May 16th, 2018 [8:00 a.m. – 4:40 p.m.]

Senior & Hargreaves Hall

7:30 a.m. – 3:00 p.m. Presenter Check-In: Hargreaves Entrance, 1st Floor
7:30 a.m. – 3:00 p.m. Information Tables: Senior & Hargreaves Halls
8:00 a.m. – 11:40 a.m. Morning Oral Presentations: Senior Hall, Classrooms
8:30 a.m. – 9:45 a.m. Morning Poster Presentations I: Hargreaves, Reading Room
10:15 a.m. – 11:30 a.m. Morning Poster Presentations II: Hargreaves, Reading Room
10:00 a.m. – 11:30 a.m. Aging Policy Fair Posters: Senior Hall, 2nd Floor Lounge
2:00 p.m. – 4:00 p.m. Afternoon Policy Fair Posters: Senior Hall, 2nd Floor Lounge
1:50 p.m. – 4:40 p.m. Afternoon Oral Presentations: Senior Hall, Classrooms
2:00 p.m. – 3:15 p.m. Afternoon Poster Presentations III: Hargreaves, Reading Room

Luncheon & Keynote
Reese Court Pavilion
12:00-1:30 p.m.

Keynote Address by Dr. Russell Kolts, Professor of Psychology

DAY TWO EVENING: FACULTY RECOGNITION & POSTER SESSION
Grant and Scholarship Excellence: Faculty and Staff Recognition
Wednesday, May 16th, 2018 [4:30 p.m. - 7:30 p.m.]

Hargreaves Hall, Walter and Myrtle Powers Reading Room

4:30 p.m. Welcome & Presenters Check-In Begins
4:30 – 7:30 p.m. Appetizers and Refreshments
4:30 – 7:30 p.m. Faculty Recognition and Poster Session
Symposium Sponsors

EWU University College, Spokane Teachers Credit Union, Washington State Opportunity Scholarship,

Special Thanks

President Dr. Mary Cullinan

Provost and Vice President for Academic Affairs Dr. Scott Gordon

Keynote Dr. Russell Kolts

Department Chair/Professor of Psychology Dr. Nick Jackson

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Spokane Teachers Credit Union
For their generous donation and continued support

Washington State Opportunity Scholarship
For their donation and commitment to EWU student success

To all the students, mentors, faculty & volunteers
who have continually worked to make the Symposium a success

If you would like to contribute to the Symposium Foundation;
envelopes are available at the Symposium Office located in 115A Showalter Hall.

Please make checks payable to: EWU Foundation for Student Research & Creative Works Symposium
Symposium Committee:

The mission of the EWU Student Research and Creative Works Symposium is to promote student research, scholarship, and creative activity done in partnership with faculty and staff as a vital component of higher education. Students, faculty, administrators, dignitaries and the community-at-large are invited to attend, hear and discuss undergraduate and graduate creative and scholarly work.

2018 Symposium Committee Members

1. Drew Ayers, Assistant Professor of Theatre & Film
2. Helen Bergland, Faculty Support & Student Learning Assessment Coordinator, Undergraduate Studies
3. Sharon Bowland, Associate Professor, Social Work
4. Cynthia Dukich, Assistant Director, McNair Scholar Program
5. Greg duMonthier, Department Chair, Associate Professor, Art
6. David Early, Director, Recreation Facilities
7. Russell Knots, Keynote, Professor of Psychology
8. Dana Elder, Professor, and Director of University Honors
9. Gail Forsgreen, Assistant Director, EWU Writers’ Center
10. Christina Torres Garcia, Director, McNair Scholar Program
11. David Gorton, College of Business and Public Administration
12. N.M. Awlad Hossain, Associate Professor, Engineering & Design
13. Ginelle Hustrulid, Assistant Professor, Visual Communication & Design
14. Javion Knox, EWU Student Government President
15. Jonathan Johnson, Professor, Creative Writing
16. Chuck Lopez, Associate Dean, University College
17. Jonathan Middleton, Associate Professor of Theory and Composition, Music
18. Justin Otto, Social Sciences Librarian, Faculty Chair
19. Kristina Pfleegor, Responder, EWU Writers’ Center
20. Esteban Rodriguez-Marek, Professor of Engineering, President of EWU Faculty Organization
21. Julia Smith, Professor, Anthropology
22. Jeffrey Stafford, Professor, Communication
23. Anna Tresidder, Assistant Professor of Health Service Administration
24. Mary Jo Van Bemmel, Administrative Specialist, University College
25. Freddy Vega, Symposium Coordinator
26. Michael Watts, GSA Office of Community Engagement
27. Kendel Clar, GSA Assistant Symposium Coordinator
28. Justin Young, Assistant Professor, English, Director of English Composition Program and Writer’s Center
INVEST IN WASHINGTON

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WSOS will serve 16,000 Scholars by 2025.

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72% are first-generation college students
73% of our Scholars are students of color

Partner with WSOS, Washington state and local industries
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Visit us online at waopportunityscholarship.org
Hermeneutical Phenomenological Analysis of Intracultural Bullying Between Mexican Americans and Mexican Immigrants

A growing body of research has examined acculturation conflicts among the fastest growing ethnic group, Latinx youth, in the United States (Lorenzo-Bianco, Oshri, Unger, Baecconde-Garbanati, & Soto, 2016). Research has reported acculturation conflicts in the form of bullying between Mexican Americans and Mexican immigrants (Mendez, Bauman, & Guillory, 2012). Language skills and a sense of superiority are two key components that drive Mexican Americans to bully Mexican immigrants due to their lack of the English language and citizenship status (Berry, 2005; Mendez, Bauman, & Guillory, 2012). Although educational interventions for bullying are increasing, interventions for intracultural bullying between Mexican Americans and Mexican immigrants are often neglected (Mermel, Gueldner, Ross, & Isava, 2008). This study will utilize hermeneutical phenomenology to investigate intracultural bullying between Mexican Americans and Mexican immigrants to formulate solutions to this cultural conflict.
As one of eight federally-funded TRiO outreach and student services programs, the goal of the TRiO Ronald E. McNair Post-baccalaureate Achievement Program is to increase the attainment of Ph.D. degrees by students from underrepresented segments of society. Eastern’s McNair Program prepares eligible participants for successful doctoral studies by providing opportunities for research or other scholarly activities including summer research internships, tutoring, academic counseling, seminars, and other educational activities designed to assist participants in securing admission to and financial assistance for doctoral enrollment. McNair research interns work closely with a faculty mentor to produce a scholarly research paper and present their findings at a conference.

This research expectation has created an ongoing partnership between McNair and EWU’s Symposium, which was first organized in 1997 by EWU chemistry professor Dr. Jeanne Small. The 1997 Undergraduate Research and Creative Works Symposium consisted of 16 total oral presentations (9 were McNair scholars); 12 poster presentations (4 were McNair Scholars) and two musical performances. In 2001, McNair Director Dr. Karen McKinney (now retired) took over coordination with the support of Dr. Ron Dalla (now retired) and the help of a graduate assistant. Dr. McKinney coordinated the event through 2005 in Monroe Hall, by which time the Symposium had grown to 145 presenters. The Symposium was moved to Senior Hall in 2006, and since then the event has grown to become a marquee event on campus.
Since the first EWU McNair grant was funded in 1995, McNair has worked closely with Eastern faculty to build a research center community where students thrive. Our quest is to continue this partnership with EWU McNair Faculty Mentors, staff, and administrators and continue the transformation of our students.
**Key Note Speaker**
12:00 – 1:30 p.m.

**Highlighted Student Research**

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**Russell Kolts, Ph.D.,**
Department of Psychology Professor

**Maya Jones,**
Music Major
Jonathan Middleton, Faculty Advisor

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**Biography**
Russell Kolts has been a member of the Psychology Department at EWU since 1999. He earned his doctoral degree in Clinical Psychology at the University of Mississippi. Over the years, he has conducted research on trauma, anger, compassion, and psychopharmacology. The main focus of his work is Compassion Focused Therapy (CFT), and the application of CFT both inside and outside of the therapy room.

**Abstract**
Wake of Thought is a choir piece composed using a randomly assigned image of a wave crashing on a rock as inspiration. From a program that tracks eye motion when shown a random image, I used the output of the data converted to musical notation to shape the piece. I then wrote a poem inspired by various elements from my perception of the image. A few wave imagery ideas may be heard throughout the piece such as the rise and fall of waves in the ocean the crash of a wave into a rock and then a bubbling effect in the piano as the water rushes back into the surface.

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**2018 Quote**
“Knowledge speaks wisdom listens.”

– Jimi Hendrix
Creative Works
### Bridge Work and Altered Cups, Location: Fine Arts Building Gallery

**Presenters:** Katrina Walker  
**Faculty Mentors:** Elisa Nappa, Chris Tyllia

I approach ceramics as a student always with an open mind as to what it will teach me today. Using mediums such as ink, paint, and sculpture I explore the possibilities of design which I then incorporate into my ceramic forms. I am drawn to the basic elements and principles of design focusing on just a specific element at a time but eventually combining everything together all at once like a great symphony playing together for the first time. My ceramic vision has been strengthened by struggling through the creative process to find a sense of balance. That balance is achieved when I maintain control of form and function then surrender the piece to the chaos of the fire creating an unexpected outcome of richness and beauty to the form. By relinquishing control of the work it gains its own voice from the magic of the atmosphere.

**College:** CALE

### Can You See Me?, Location: Fine Arts Building Gallery

**Presenters:** Amelia Burke  
**Faculty Mentors:** Greg duMonthier

Sketchbook pages with watercolor wash cut into roughly one inch squares and arranged into pixilated image attached to background with glue. This work explores the relationship between the macro – the image – and the micro – the details. Stepping back a picture should start to appear stepping forward pieces of written notes and bits of thumbnail sketches pull the attention of the viewer. The relationship between the final piece and the artists process is also investigated by allowing initial rough ideas to compose the polished final.

**College:** CALE

### Color my Life, Location: Fine Arts Building Gallery

**Presenters:** Darby Holt  
**Faculty Mentors:** Jenny Hyde

With this collection of artwork Color my Life I wanted to really capture the variety of emotions I've been feeling over the last quarter using colors and shapes. Colors can be so powerful and for me this has been a very personal project. Using a combination of bold colors and organic and geometric shapes crafted pieces that represented how I felt. My inspiration for this collection was based off my life over this last winter and the ups and downs during it. I love making bright fun art that speaks for itself so it's also been a fun project to create. I use Illustrator to form shapes and color them representing the kinds of emotions I'm feeling. Digital art was a great creative outlet to make this collection and I've been expanding on it as well.

**College:** CALE

### Curious Forms, Location: Fine Arts Building Gallery

**Presenters:** Brandt Wurzer  
**Faculty Mentors:** Chris Tyllia

These are two pieces that explore the functionality and unique capabilities of ceramics. A floor standing ceramic lamp in the shape of an old WWII drop bomb shines light on a planter with bonsai type plants. The planter is unique in form with three tiers of miniature plants. The combination of the two is contrasting in nature due to the death and destruction caused by warfare yet this piece provides light and life to the flora below.

**College:** CALE
**Ecosystems to Egosystems, Location: Fine Arts Building Gallery**

*Presenters: Dana Rowland*

*Faculty Mentors: Jenny Hyde*

Currently the goal in my artwork is to highlight this dependence on plastic in our society. I have been an avid recycler for many years. Though it was not until the opportunity arose to take a Bio-Environmental course on the island of San Cristobal of the Galapagos Islands of the coast of mainland Ecuador that I saw firsthand just how destructive plastic specifically plastic that humans produce can be. This planet is not built on disposable resources it is built on usability of the resources that naturally occur. Ecosystems at every level sustainability relies on the animals, plants and weather of the area to survive. Humans try so hard to be independent instead of being self-sufficient. A person’s daily life revolves around plastic from our medications, bathroom products, storage containers to even our electronics and outdoor furniture. Plastic is cheap and easy to produce but it is a human creation that will never leave this planet use it or produce. It will only get smaller. If production and the lack of reusing plastic is not altered humankind’s plastic Egosystem will be our downfall; our population too will become smaller and then extinct all together. Our evident love for cheap and easy will be what is left of our culture forever capsulated in the plastic we left behind.

*College: CALE*

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**Following the Grain to Another Then Another, Location: Fine Arts Building Gallery**

*Presenters: Katelyn Reed*

*Faculty Mentors: Greg duMonthier*

This piece is a study and abstraction of the four main bones of the hands as well as the veins and line patterns within the makeup of hands, maps, and bark beetle trails. The content and material reflects on my personal thinking process about the connections between visual and connotative elements from my life experiences and environment. Mixing line patterns plays with the concept of interconnections being complex yet transparent.

*College: CALE*

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**Forgotten, Location: Fine Arts Building Gallery**

*Presenters: Heidi Bancroft*

*Faculty Mentors: Jenny Hyde*

This oil painting takes inspiration from images found in old damaged and discarded photographs. The composition combines these various elements along with abstracted organic shapes to give a new life to the forgotten images. Green monochrome is used to create a suggestion of growth and life. The painting emphasizes the beauty and importance of memory and its impact on the life of the present and future.

*College: CALE*

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**La Belleza de mi Cultura, Location: Fine Arts Building Gallery**

*Presenters: Karina Arreola-Gutierrez*

*Faculty Mentors: Margot Casstevens*

Everyone comes from different cultural backgrounds and being aware of different cultures allows you to be able to connect with the people that surround you. All cultures have beauty in either music, food, language, religion, art, traditions etc. In my prints I explore and share my cultural background through the beauty of traditional dance masks; using the color, pattern and forms found in different regions of Mexico.

*College: CALE*

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**Light, Location: Fine Arts Building Gallery**

*Presenters: Leslie Kolke*

*Faculty Mentors: Greg duMonthier*

This charcoal drawing was created as an exploration of lightness and darkness focusing on the interactions between them. Glass and metal naturally have an astounding array of reflections, highlights, and shadows making it the perfect subject for this study. The items themselves also depict the piece’s focus on light in another way: as an unusual, intimate look at classic holiday light bulbs.

*College: CALE*

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**Organic Forms, Location: Fine Arts Building Gallery**

*Presenters: Danielle Hansen*

*Faculty Mentors: Elisa Nappa, Chris Tyllia*

This three dimensional wall hanging used porcelain, acrylic paint, glue, and nails. These transparent organic shapes test the limits of porcelain clay and explore the relationship between artificial and natural forms. Eliminated by led lights these forms’ details are stressed even further.

*College: CALE*
4:45pm – 5:15pm  
**C Sightless Seekers of Exuberance, Location: Fine Arts Building Gallery**  
*Presenters: Erik Sullivan*  
*Faculty Mentors: Tom Askman*  
4’ x 5’ Oil and acrylic  
*College: CALE*

4:45pm – 5:15pm  
**C The Motions, Location: Fine Arts Building Gallery**  
*Presenters: Antonina Lovyn*  
*Faculty Mentors: Jenny Hyde*  
“The Motions” piece was drawn with Micron Ink fine line pens and a sharpie. This piece of artwork represents the everyday ups and downs of life—the little nooks and crannies of every day. People have plans for the future things they want to do but it never goes according to the plan and that is okay because that is what life is all about. The motions. The beauty of life is not knowing what will happen tomorrow or even today and that is what I wanted to represent in the drawing that feeling of uncertainty but also the peacefulness of it.  
*College: CALE*

4:45pm – 5:15pm  
**C The Oldest Child, Location: Fine Arts Building Gallery**  
*Presenters: Danielle Hansen*  
*Faculty Mentors: Margot Casstevens*  
This suit of collagraph prints explores the troubling topic of sexual abuse evident within a family. Collaborating with an anonymous community member these prints show the horrors of incest evident yet ignored in the “Baby-boomer” generation. Exploring the rights of children and women in the 1940s and 1950s this suit focuses on personal experiences as well as troubling universal imagery. These prints were created using many traditional printmaking techniques as well as digital techniques.  
*College: CALE*

4:45pm – 5:15pm  
**C Untitled, Location: Fine Arts Building Gallery**  
*Presenters: Mckenzie Loney*  
*Faculty Mentors: Greg duMonthier*  
A stone, twine, bone fragments, a strand of human hair, seashell, eggshell, bubble wrap, poly-fil. I wanted to contrast the different weights between these objects and their different strengths. In doing so, I hope to create a dialogue between the pieces and the viewer. The common sayings, “Sticks and stones may break my bones, but words will never hurt me” and “Walking on eggshells” may come to mind when looking at this piece.  
*College: CALE*

5:15pm – 5:35pm  
**C Seasoned Lovers, Location: Art Auditorium (Art 116)**  
*Presenters: Katelyn Domitrovich*  
*Faculty Mentors: Jonathan Johnson*  
These poems are a chain of haiku detailing the relationship between the wind and the earth. In the traditional fashion, the haikus are three lines with a syllable count of five-seven-five. Each poem focuses on one of the four seasons in a timeless way that blends nature with humanity.  
*College: CALE*

5:15pm – 6:05pm  
**C B.O.B., Location: Fine Arts Building Gallery**  
*Presenters: Matt Henson*  
*Faculty Mentors: Don Goodwin*  
This piece features the fusion of a String Quartet and a Traditional Jazz Quintet which creates a new age style of jazz which is very prevalent in today’s jazz community. It moves through two different overarching sections in “arch” form (ABA) and showcases two colors: Blue (A) and Orange (B). This piece shows how classical and jazz music can converge and develop a new style and sound while paying homage to the original sound of the jazz philharmonic.  
*College: CALE*
5:15pm – 6:05pm

C Descent, Location: Fine Arts Building Gallery

Presenters: Nathan Sumerlin
Faculty Mentors: Jonathan Middleton

“Descent” is a piano solo that tells a story of an individual traveling down a dark path. The piece captures the feeling of insecurity as it slowly builds in texture, harmony and tempo. Almost turning into a dance but never sitting well enough to allow any comfort. I chose to make “Descent” a piano solo because I wanted to both physically embody isolation with having only a single performer while maintaining a large range of timbres and textures. The piano has the largest range of any instrument and can play two different lines at once which adds to the complexity of the piece.

College: CALE

5:15pm – 6:05pm

C Gray Skies, Location: Fine Arts Building Gallery

Presenters: Nathan Sumerlin
Faculty Mentors: Jonathan Middleton

Gray Skies is a piece about my past impressions while living on the west side of Washington where it rains the majority of the year. I have one particular memory when I was a young child when my family and I were piling into our car at four in the morning to go to the airport. I distinctly remember the cold rain and sharp wind on my face and to this day when it’s raining and cold I still remember this moment vividly. I started my process writing this piece with the name “Gray Skies.” I wanted a single idea to build and develop the rest of the piece and I had the thought after looking through photos of my hometown, where almost every photo was overcast and gray. This lead me to a “gray” scale that served as an anchor for the rest of the composition. “Gray Skies” is scored for a traditional saxophone quartet with timbres that supports my idea of a light rain. Using sound effects on the instruments themselves and even a rain stick the orchestration boosts the cloudy effects of the piece.

College: CALE

5:15pm – 6:05pm

C Quoting Sibelius, Location: Fine Arts Building Gallery

Presenters: Samuel Jenkins
Faculty Mentors: Don Goodwin

“Quoting Sibelius” is a representational piece of music written for four cellos. Written to represent the life of a hero up until his/her encounter with the antagonist is meant to transport the audience into the life of the Hero. This piece was inspired by the an excerpt from Sibelius’ tone poem titled “En Saga,” specifically a bassoon solo toward the beginning of the piece. After taking each note of the solo expanded on each note making it into a full piece of music. I then took four measures from the beginning of this new piece and expanded this into my final product. This piece sounds nothing like the excerpt from Sibelius’ Symphony and thus is entirely my own creation.

College: CALE

5:15pm – 6:05pm

C The Idaho Springtime, Location: Fine Arts Building Gallery

Presenters: Carl Christensen
Faculty Mentors: Don Goodwin, Jonathan Middleton

“The Idaho Springtime” is a composition for vocalist, guitarist, violinist, trumpet and light percussion. With this song I plan to take full advantage of the performance space. Rather than having all the performers stationed in front of the audience group of musicians will be placed on the stage while small groups of players will be stationed around the upper level of the art gallery. This will give me the ability to control not only what the listeners are hearing but where they are hearing it from creating a musical experience that would be difficult to emulate in any other space. Lyrically this song is about my recent experience moving my grandmother into Hospice care while her memory begins to fail. The song finds itself standing somewhere in the middle ground between singer/songwriter and classical music. I suspect that resonance of the performance space paired with the lyrical content will result in an emotional and compelling performance.

College: CALE

5:15pm – 6:05pm

C Wake of Thought, Location: Fine Arts Building Gallery

Presenters: Maya Jones
Faculty Mentors: Jonathan Middleton

Wake of Thought is a choir piece composed using a randomly assigned image of a wave crashing on a rock as inspiration. From a program that tracks eye motion when shown a random image I used the output of the data converted to musical notation to shape the piece. I then wrote a poem inspired by various elements from my perception of the image. A few wave imagery ideas may be heard throughout the piece such as the rise and fall of waves in the ocean the crash of a wave into a rock and then a bubbling effect in the piano as the water rushes back into the surface.

College: CALE
### Leaky Faucets, Location: Art Auditorium (Art 116)

**Presenters:** Emily Bonsant  
**Faculty Mentors:** Jonathan Johnson

Leaky Faucets  

Towards the end of day the water’s out,  
run drydead till morning comes.  
Desert winds approach  
takin’ away the sun. Forgotten is our wood house,  
no more moon nor sky just you & I and &  
the darkened outside.  
Water is gonelornow.  
The ocean’s empty but rest comes  
for all in their own time.  
I wish we could have borrowed more time,  
more time to have seen sky,  
more time to live towards the sun  
towards us.  
How little time we had. Did we squander it?  
Now there’s no more light bulbs to change  
no more light of returning day  
just the darkened outside.  
There will be a day again this I know  
but I will have to see it without you.

**College:** CALE

### Collection of Poetry Based on Nature, Location: Art Auditorium (Art 116)

**Presenters:** Sarah Boland  
**Faculty Mentors:** Jonathan Johnson

Throughout my winter quarter I have been writing a series of poems focused on nature. They have been workshopped and revised. Each one focuses on a form of nature through a very minimalist point of view. Each poem contains a very child-like wonderment towards nature. I will be discussing themes as well as construction and process of writing a collection of poems.

**College:** CALE

### Fijian Lifestyle; an Insight to CultureCommunity and Education, Location: RTV Building Room 221

**Presenters:** Melanie Flint  
**Faculty Mentors:** Michael Zukosky

This video documentary is based on my four weeks volunteering as a teacher in Suva Fiji’s Capital; I spent my mornings teaching in a Kindergarten and my afternoons as a tutor in a village. In the heart of the South Pacific Ocean Fiji consists of 330 islands about one third of which are inhabited. The developing island nation of Fiji models an insightful view to a different approach to primary education. As I became a part of the community I began to use still photography and video recording as an exploratory method to capture the life of the school and community. This video explores one of the re-occurring themes in my photographs and videos; schooling in Fiji directly reflects the culture and community lifestyle. The adults in the village would sit in on tutoring sessions and help younger children with their work if they needed; children were remarkably engaged with their education. Through participant observation and exploratory methods I came to question the relationship of the culture as a whole relative to their practices of education. Returning home was able to reflect on the common themes in the visual data I had captured and eventually compiled it into this eight minute long video. This compilation of video clips exemplifies a day in the life of Fijian education; through it we are able to observe and celebrate a cultural diversity that gives insight into an approach to education we might not have otherwise considered.

**College:** CSS

### A Scene from Pluto by Steve Yockey, Location: University Theatre Stage

**Presenters:** Maddy Daly, Tristan Roseff, Rylie Scott  
**Faculty Mentors:** Sara Goff

Bailey- Tristan Roseff  
Cerberus- MJ Daly  
Maxine- Rylie Scott

**College:** CALE
### Brick Wall with Wainscot Window, Location: University Theatre Stage

**Presenters:** Holly Kirkman  
**Faculty Mentors:** Shana Joslyn  
In this creative work you'll see many different paint techniques from a basic scumble and wet blend to sponging/stippling and dry brushing to create this painting of a brick wall with a wainscot window shutter. Long brush strokes create vines that are growing on to the wallsprouting yellow and orange leaves.  
**College:** CALE  

### KC ACTF 2018 Irene Ryan Package, Location: University Theatre Stage

**Faculty Mentors:** Sara Goff  
My partner Olivia Davies and I will be performing two scenes: one from Last Summer at Bluefish Cove by Jane Chambers and one from American Kids by Emily Kaczmarek. I will be performing a monologue from The Care and Feeding of Baby Birds by Ann Wuehler.  
**College:** CALE  

### KC ACTF Audition Packet, Location: University Theatre Stage

**Presenters:** Hazel Bean, Skyler Moeder  
**Faculty Mentors:** Sara Goff  
This collection of short contrasting scenes and a comedic monologue was submitted by Irene Ryan Nominee Hazel Bean at this years Kennedy Center American College Theatre Festival.  
**College:** CALE  

### KC ACTF Irene Ryan Audition Package, Location: University Theatre Stage

**Presenters:** Brittany Lael, Hannah McLaughlin  
**Faculty Mentors:** Sara Goff  
Our package includes scenes from "The Healing" by Samuel D. Hunter and "Friends with Guns" by Stephanie Alison Walker as well as a monologue from "Cardboard Piano" by Hansol Jung.  
**College:** CALE  

### Richard III Act 1 Scene 2, Location: University Theatre Stage

**Presenters:** Skyler Moeder, Scott Worley  
**Faculty Mentors:** Jeff Sanders  
This was assigned to Skyler and myself in our Acting 3 class Fall Quarter.  
**College:** CALE  

### The Door, Location: University Theatre Stage

**Presenters:** Brittany Lael  
**Faculty Mentors:** Shana Joslyn  
This is a scenic painting of a door with foliage and brick on the outside.  
**College:** CALE  

### Wisteria, Location: University Theatre Stage

**Presenters:** Hannah McLaughlin  
**Faculty Mentors:** Shana Joslyn  
This scenic painting was created through the use of various theatrical scenic painting techniques.  
**College:** CALE
<table>
<thead>
<tr>
<th>Time</th>
<th>Session</th>
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<tbody>
<tr>
<td>6:15pm – 6:35pm</td>
<td><strong>From Madness to the Marvelous to the Masses: André Breton’s Surrealist Revolution</strong>, Location: Art Auditorium (Art 116)</td>
<td>Art Auditorium (Art 116)</td>
<td><strong>Presenters:</strong> Blake Parkinson</td>
<td><strong>Faculty Mentors:</strong> Jonathan Johnson</td>
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<td>In February of 1915 a young French medical student named André Breton was sent to Nantes on the banks of the River Loire. Breton, just nineteen years old, had been conscripted into the army following the outbreak of World War I. Breton’s assignment in Nantes was to serve as an orderly in the neurological ward of a military hospital. While interviewing and treating his shell-shocked countrymen, Breton became fascinated with madness. Though he considered pursuing a career in psychiatry, Breton was not destined for a life as a psychoanalyst or medical professional. Rather, he would use his fascination with the mind and its maladies to stage a revolution—la revolution Surrealiste—in his chosen field: poetry. In 1929 and then in 1934, Breton published two Manifestoes of Surrealism. In them, he articulated Surrealism’s contributions to—or perhaps more accurately, stated, overturnings of—literary and artistic convention. The first manifesto lays the groundwork of whataccording to Breton, Surrealism was exactly. In the Second Manifesto of Surrealism, Breton fully articulates the connection between madness and his revolution. By closely examining these manifestoes, we see that for Breton, Surrealism was a revolutionary approach to the problem or artistic inspiration. Surrealism sought to re-order poetry itself not only by doing away with aesthetic conventions and a system of poetic merit based on technical proficiency and mastery but also by making artistic inspiration available to everyone. For Breton, it is precisely by wielding artistic inspiration that we come to avoid the potential outgrowth of despair—mental illness. Rather than succumbing to a desire to escape reality by constructing and then inhabiting a pathological fantasy world, Breton believed that an individual could instead create art as a means for channeling the urge to escapethus avoiding the development of neurotic illness. Breton, a serious and highly influential poet, proposes that art can be a universal treatment for mental illness. By expanding access to the means of producing poetry and making poetry available to all, Breton proposed to turn the arts into a cure for the psychological ills of modern life.</td>
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<td>6:20pm – 6:40pm</td>
<td><strong>Password Security Video Game</strong>, Location: RTV Building Room 221</td>
<td>RTV Building Room 221</td>
<td><strong>Presenters:</strong> Anthony Fairfax</td>
<td><strong>Faculty Mentors:</strong> Carol Taylor</td>
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<td>The video game I created is designed to show students the importance of password security. How easily passwords can be tapped into and poor practices to keep with it. In the game, players will use deductive reasoning to explore office rooms and find clues to crack passwords with.</td>
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<td>6:35pm – 6:55pm</td>
<td><strong>Counterstories of EWU Students of Color: Voices of Strength, Survival and Resistance I</strong>, Location: Art Auditorium (Art 116)</td>
<td>Art Auditorium (Art 116)</td>
<td><strong>Presenters:</strong> Giselle Gudino, Amanda Mell, Yoni Mota, Horacio Perez, Melissa Ramirez</td>
<td><strong>Faculty Mentors:</strong> Norma Cardenas</td>
</tr>
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<td>The histories, experiences, cultures and languages of students of color have been silenced and distorted within formal educational settings. In this panel presentation, the students use critical race theory (CRT) and Latina/o Critical Race Theory (LatCrit) to share their counterstories about their educational journey. Students address epistemological questions that deal with powerpolitics and survival. Students’ experiential knowledges are viewed as strengths and viewed as uniquely individual while collective and connected. The stories reveal students of color experiences with and responses to racism, sexism, classism and heterosexism in the U.S. educational system. Through CRT counterstories can serve as pedagogical tools and methodological practices that allow one to better understand and appreciate the experiences of students of color through open listening. The epistemologies of students of color offer culturally specific ways of teaching and learning and ways of knowing to transform educational research and practice.</td>
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</table>
6:55pm – 7:15pm

C Counterstories of EWU Students of Color: Voices of Strength, Survival and Resistance II, Location: Art Auditorium (Art 116)

Presenters: Honey Brown, Norma Cardenas, Giselle Gudino, Sarahi Gutierrez, Amanda Mell, Gloria Montemayor, David Ogle, Horacio Perez, Melissa Ramirez

The histories, experiences, cultures, and languages of students of color have been viewed as deficit or ignored within formal educational settings. In this panel presentation, the students use critical race theory (CRT) to share their counterstories about their educational journey. Students address epistemological questions that deal with power, politics, and survival. Students’ experiential knowledges are viewed as strengths and viewed as uniquely individual while collective and connected. The knowledge helps students navigate through educational obstacles and make a positive contribution in their communities. Through CRT, counterstories can serve as pedagogical tools and methodological practices that allow one to better understand and appreciate the experiences of students of color through open listening. The epistemologies of students of color offer culturally specific ways of teaching and learning and ways of knowing to transform educational research and practice.

College: CSS

7:00pm – 8:00pm

C Heats, Location: RTV Building Rm 123

Presenters: Marissa Fox
Faculty Mentors: Elisha Miranda

A young man learns that love isn’t necessarily where we first look. This is an LGBTQ+ film adapted from a comic I drew and wrote in high school. A major part of what I’d like to convey through this film is what I’ve learned about diversity, representation, and adaptation in taking film classes. With adaptation changes must be made from one medium to another. The biggest difference between the original comic and this new version is that rather than a female, it’s another male who comes along to help the protagonist. This is my attempt to add openly bisexual representation into a medium where I’ve seen surprisingly little. Along with that, I want to foster a loving atmosphere and be as authentic as possible. Everyone on the crew and cast are either LGBTQ+ in some form or another or openly allies of the community. In a time that we seem to be constantly bombarded with news of hateful acts, I hope this film can bring a little bit of love and happiness to the world.

College: CALE

7:00pm – 8:00pm

C I Make My Noise, Location: RTV Building Rm 123

Presenters: Elan Toby
Faculty Mentors: Chase Ogden

A short essay documentary about a female rock musician in a male dominated industry.

College: CALE

7:00pm – 8:00pm

C The Little Things, Location: RTV Building Rm 123

Presenters: Evan Hoff
Faculty Mentors: Chase Ogden

My project is a short documentary film about my aunt who has been living with ALS for 12 years. She talks about the struggles she has faced and how living with the disease has changed her life. She shares her wisdom through the screen about what is truly important. She has an extraordinary story that inspires many to live seeking friends, memories, and the truly important parts of life.

College: CALE

7:00pm – 8:00pm

C Two Faced, Location: RTV Building Rm 123

Presenters: Kendra Strahm
Faculty Mentors: Adam Boyd

Based on the short story “The Tell-Tale Heart” by Edgar Allan Poe, a man is driven to murder in order to reunite with his mentally ill wife, leading to a confrontation with a troubled yet determined detective. Made for an adaptation class, this film remains as one of the largest and most challenging projects I have had the pleasure to direct. Adaptation is a form of writing that I believe every writer should try at least once in their career. For me, adapting this piece not only broke my creative block but also showed me how adaptation has the power to bring new life to an old story. With this film, I aimed to use the themes of “The Tell-Tale Heart” to tell a story with the same lesson as the original but with an unique twist. Adaptation is often overlooked but offers a fresh perspective on storytelling that is needed.

College: CALE
Hubcap Night Lights, Location: Art Auditorium (Art 116)

Presenters: Kimberlee Pekrul
Faculty Mentors: Craig Ricket

When I first started this project, I used the entire dining room table as my work station. I even started a turf war with one of my roommates for taking up too much space. Considering no one ever used the table I still think I was justified. I gradually glued individual flowers onto my first two prototypes. I slowly fell in love with the idea that this art is an extension of myself. These discarded hubcaps were a bit like me. Once discarded, now given a second chance to metaphorically and physically shine.

I have had a few, rough years at school. At my lowest point, I had just about given up on life. I no longer saw a light guiding my way, and had begun to shut everyone out. The turning point was when I faced several health crises and had to face my own worst fears. So, I started to take my health more seriously. I started to go for walks more often. In the neighborhood where I walk there were a lot of hubcaps covered by weeds, dust, and forgotten by time. In the early days, I began experimenting with spray paint, splatter patterns, and taping off sections. I remember walking through Target trying to buy light bulbs and seeing string lights with a battery pack. I thought it only fitting that, like me, the hubcaps be given a second chance and a change in their life’s direction. While they are now anchored and not moving, they are not spinning out of control either. They could, in spirit at least, remain hubcaps but now re-purposed they have form and function. I can see them being used on patios, in man caves, in themed nurseries and kid’s rooms, and even on staircases where they might save someone from a serious fall.

Once my family heard what I was doing, they started telling me where they had seen hubcaps on their daily routes. I went around and collected those as well as the ones I found myself. Two years and two other volunteers later, I have 16 hubcaps in total. There is something powerful in my project which illuminates art and circumstance for a second chance, and which spotlights a human's ability to re-think a problem in a fresh and creative way.

College: CALE

Words and the Language that Requires None, Location: RTV Building Room 221

Presenters: Olivia Nemec
Faculty Mentors: Paul Lindholdt

These set of photographs capture human life and still life. As an English major I hold great credence in the power of the written word and the art of storytelling. However as a photo artist I also am aware that not every story requires words. A true artist can tell a story capture a feeling or freeze a moment in time forever without ever picking up a pen in photography. Combining my two passions have allowed me to grow in both fields and expand creatively in ways I never thought possible each influencing the other in unexpected ways.

College: CALE

Performance Poetry as a Medium, Location: RTV Building Room 221

Presenters: Grant Wengeler
Faculty Mentors: Paul Lindholdt

This symposium presentation will focus of the musical elements of the English language with specific attention to performance poetry as an artistic medium. This will consist of an explanation of stressed words or syllables and the musical beat they create when used in poetic verse. There will also be a short video used as an example that contains poetry performed in a hip-hop style followed by a live performance of an original poem I wrote to exemplify the topic. The purpose of the video and live performance will be to demonstrate techniques used to create lyrical performance verse. The comparison between poetry and music will become apparent to the audience and perhaps result in a new understanding of popular music; particularly hip-hop and rap. This method of using only words to create music also contains many cultural influences. Similar methods are used commonly throughout Islam which utilizes the inherently musical language of Arabic to “sing” from the Qur'an. “The Dozens” is a well known game originating from Africa where clever use of language and particularly rhyme schemedecides the winner of the game. This is still used commonly today but is known in modern culture as “rap battles,” or “capping,” among other names. The presentation will include a brief explanation of the cultural influences for better understanding of the importance of the topic.

College: CALE
Oral Presentations
Comparing Nematode Abundance to Brook Stickleback (Culaea inconstans) Body Size, Location: Senior Hall, Room 101

Presenters: Karina Cardenas, Martina Davis, Mahdieh Lashgari, Kristen Tattrie
Faculty Mentors: Krisztian Magori

Brook Stickleback (Culaea inconstans) are an introduced invasive species found in natural wetlands located in Turnbull Wildlife Refuge in Eastern Washington. Sticklebacks are known to host a variety of parasites including nematodes. The goal of this research is to compare the number of nematodes to the body size of the sticklebacks. Specimens collected from Turnbull Wildlife Refuge body size will be measured and gut contents will be analyzed. This research aims to characterize the host parasite relationship of nematodes and sticklebacks to better understand at what stage of life sticklebacks are most susceptible to parasitism. This will provide greater understanding on adverse effects these fish have on the ecosystems they invade at the Turnbull Wildlife Refuge specifically. The expected results for this research is to find a direct correlation between amount nematodes and size of sticklebacks.

College: CSTEM

Developing an English Curriculum for a school in Nicaragua, Location: Senior Hall, Room 221

Presenters: Stan Pichinevskiy
Faculty Mentors: Gina Petrie Lavona Reeves

Acquiring the English language in Nicaragua is not just an acquisition of a foreign language; it’s an essential skill that will provide a vocation for the people in the community. Since tourism and agribusiness are the top two rapidly growing industries in the country developing an effective and sustainable EFL and ESP curriculum becomes imperative. The presenters supported a rural technical school in Nicaragua that has established itself as a sustainable institution fitted with an offsite hotel and a farm including a produce processing plant. Nearly 300 students attend the school from sixth to eleventh grade and choose a specific path to complete their studies either tourism or agribusiness. The presenters will discuss the important elements of the curriculum design process critical to its success. The curriculum was created to be culturally congruent with the students’ schools’ and community needs with continuous teachers training and program support. Participants will learn how the key elements were investigated and applied in creating the EFL ESP Curriculum so that they may apply the same process in their own context.

College: CALE

Ethics in US Public Schools, Location: Senior Hall, Room 243

Presenters: Carissa Teeters
Faculty Mentors: Dana Elder

Today’s current issues involving political corruption and social inequality are not new issues. In fact, these same issues can be seen back in times when the well-known philosopher Aristotle was alive. Aristotle took it upon himself to inform the youth in his community on ethics and other moral guidelines. Keeping this in mind one could reasonably assume that our country would try to emulate this and inform our students on ethics however this is not the case. In this presentation I analyze data that was collected in regards to this topic to display our nation’s lack of effort in teaching our youth about moral codes.

College: CSTEM
8:00am – 8:20am  ○ Exploring Spanish Heritage Speakers’ Beliefs: Language Maintenance and Identity, Location: Senior Hall, Room 203
Presenters: Marcelino Ruiz-Martell
Faculty Mentors: Miguel Novella
This research intends to explore college Spanish heritage speakers’ attitudes and beliefs in regard to their heritage language. A heritage speaker is a person who is raised in a home where a language other than the dominant language of the community is spoken and can therefore communicate at some degree or is somewhat proficient in both languages (Valdés 2000). Spanish in the U.S. is at a turning point the arrival of Spanish-speaking immigrants has drastically decreased (Pew Research Center 2016). As a result, without the influx of immigrants who speak the Spanish language, the maintenance or loss of the Spanish language in the U.S. rests in the younger generations of bilingual speakers. Are young Latinos going to conform to the three-generation expectation according to which the family’s native language is lost by the third generation (Fishman 1966–1991)? This qualitative study explores some of the beliefs that young bilingual speakers have in regard to their heritage language. Interviews conducted with four bilingual Spanish-English speakers (2 males and 2 females) using an open-ended questionnaire were recorded and analyzed to shed some light on the beliefs of bilingual speakers. Questions explored participants’ beliefs about language identity and current common issues such as language shift etc. Results show that Latino bilingual speakers intend to preserve their cultural identity and language while at the same time looking for ways to integrate into the American society.
College: CALE

8:00am – 8:20am  ○ Immigration, Location: Senior Hall, Room 306
Presenters: Luis Martinez
Faculty Mentors: Martín Meráz Garcia
Going a little more than one hundred years back, Mexican citizens started migrating to the U.S. in search of a better future for them and their families. Most of the time we don’t realize what forces people to take such decisions and tough risks. The purpose for this paper is to inform the reader what all Latinos go through in order to succeed in life and have a better future for them and their families. In this research readers will also see why Latinos came before and why they continue to migrate to this country. Mexico is not the best country to live in even though it has great food and great beaches but we never pay attention to the challenges their people must endure among the cartels, corruption, lack of education, and government corruption. Therefore using peer review and scholarly sources here are some of the reasons why many people decide to abandon Mexico.
College: CALE

8:00am – 8:20am  ○ Latino Graduation Rates

8:00am – 8:20am  ○ N-Body Physics Simulation, Location: Senior Hall, Room 201
Presenters: Derek Sams
Faculty Mentors: Dan Tappan
The classical N-body physics problem simulates the changing states and evolution of a system consisting of N number of bodies where each body is subject to forces originating from its interaction with all other objects or bodies within the system. This work presents a solution to the N-body problem combined with a real-time graphical representation. It is an extension of a 2D project created in this University’s Modelling and Simulation class motivated by the desire to extend the originating project from two dimensions to three dimensions and provide more accurate to-scale interactions from the various bodies associated with the simulation. It allows for visual analysis of the various changes in state of the simulated bodies and in extension provides additional comparison between solutions to the N-body problem.
College: CSTEM

8:00am – 8:20am  ○ STEM Educational Crisis within the Hispanic Community, Location: Senior Hall, Room 304
Presenters: Samuel Guest
Faculty Mentors: Martín Meráz Garcia
The science, technology, engineering, and mathematics (STEM) field has suffered a loss in qualified personnel. The Hispanic population in America is growing at an exponential rate without adding to this field of study. In areas where minorities make up more than half of the student population, the education systems are focusing most of their efforts in English reading and writing withdrawing their focus on education in STEM. Hispanic students show a decrease in dropout rates in high school and an increase in higher education enrollment within the last ten years. The rate at which these students are choosing a STEM related degree program is not filling the needs of this industry. The underrepresentation of Hispanics is adding to the education crisis within STEM related degree programs. Analysis of current census data crossed with current and past cultural barriers assessment of the American Education System is done with learning how we can market STEM related degree programs to Hispanic youth.
College: CSS
8:00am – 8:20am

The Cultivation of Identity, Location: Senior Hall, Room 204
Presenters: Lara Thames  
Faculty Mentors: Michael Zukosky
Our identity ties us to our world and those around us. The ways in which our identities are shaped stem from 4 general areas: biology, experience, environment and purpose. This essay examines these four areas to better understand the variety of perspectives humans can possess and how they draw upon these areas for decision making, interpersonal communication, and social associations. These combine and interact to create an individual’s self-perception. This self-perception ends up affecting the individual’s perspective of the world and the ties to the culture the individual develops in. Ultimately your perception of the self is the filter through which we receive information. And this filter is tinted by emotion.

College: CSS

8:00am – 8:20am

The Impact of Latino’s Education on Their Employment, Location: Senior Hall, Room 302
Presenters: Janelle Leinweber  
Faculty Mentors: Martín Meráz Garcia
This paper will inform you on Latino education and how it has an impact on job employment. Today the Latino population has grown over the years. The reason for this paper is to get a deeper understanding of Latino’s education and how it has an effect on their employment in the future. Earning a college degree remains a challenge for Latinos still to this day. The Latino graduation rate is increasing which is good but now it is just getting these kids to enroll in their further education. It all starts with support that is when we need to find the resources that will help and benefit each kid as they get to college. If we can get access to better college and career counseling beforehand then Latinos will be able to run towards a promising future.

College: CSS

8:20am – 8:40am

An Ethnographic Study of Ethnolinguistic Identity and Resiliency in the Life of an Afghan Refugee, Location: Senior Hall, Room 221
Presenters: Logan Amstadter  
Faculty Mentors: Lavona Reeves
Forced to flee her native Afghanistan because of the Taliban, Sorraya grew up in Tehran suffering discrimination because of her family’s status as Afghan refugees. When motherhood motivated her to make the dangerous overland journey from Iran to Turkey because of a lack of opportunity for her children, she and her family paid a smuggler to cross the mountains. After three years in a refugee camp in Turkey, they were finally resettled in the United States as refugees. Not surprisingly, many refugees and immigrants find life difficult in a new society, and there are a multitude of reasons that people in similar situations might not thrive. Sorraya, however, is a counterexample to such common observations about refugees – their language acquisition and their ultimate integration. Despite immense adversity, she is excelling here in the United States – attending a community college to earn a degree and translating for other members of her community. The following is an ethnographic interview that explores how her flexibility with respect to who she is – her ethnic identity and ego permeability – and her personal connections with members of the target culture motivate her and contribute to the success she has had in making a life here. She desperately hopes that her family will someday join her in the United States. Refusing to dwell on the past and enduringly optimistic about the future, Sorraya is a model of resiliency and emblematic of the immigrant spirit.

College: CALE

8:20am – 8:40am

Dynamic Terrain From Webcam, Location: Senior Hall, Room 201
Presenters: Areej Cluntun, Derek Sams, Zechariah Speer, Eli Swanson  
Faculty Mentors: Dan Tappan
Three-Dimensional representation of objects in the real world via computer vision is a burgeoning and exciting field within computer science. It involves a complex combination of algorithmic analysis of images along with processor-intensive calculations to weave together what it is a computer sees as an untranslated direct image and how it then represents that image within a virtual environment. This work produces a possible solution to this issue in the form of dynamic generation of a terrain object based upon a webcam feed provided to a computer. This work focuses on creating a system by which a computer can translate visual data into a 3D virtual object via algorithmic analysis of the image data and vertex math.

College: CSTEM
Helping Undocumented Citizens Receive a College Education, Location: Senior Hall, Room 304

Presenters: Aaron Medeiros
Faculty Mentors: Martín Meráz Garcia

Immigration has been one of the biggest subjects in the United States political system. The main question this research paper asks is what are we doing about getting our undocumented students a higher level of education? Using peer reviewed and scholarly sources I’m going to look into the different types of programs that’ll help undocumented citizens receive a college level of education. The Plyler vs. Doe case 1982 was the first thing that started this revolution. This case states that everybody no matter their legal status has the right to receive an education from kindergarten to twelfth grade. This started the movement to get undocumented students a college education. With the help of DACA and the 2017 DREAM ACT we as a nation are working to help native born receive the same type of treatment and schooling that any other kid would receive.

Immigration in the United States, Location: Senior Hall, Room 302

Presenters: Grace-Marie Chojnowski
Faculty Mentors: Martín Meráz Garcia

In 2015 there was 43.2 million immigrants in the United States. That makes up 13.4% of the population. The New York Times says that there are around 11 million undocumented immigrants in the United States and of that 11 million 6.2 are from Mexico. Because of this immigration has become a big issue in American politics today. Using peer review and scholarly sources this paper will discuss the process of legally immigrating to the United States and it will also look into why it takes some people over twenty years to get citizenship or even permanent residence card. Additionally this work explores the factors that causes the uprooting of Mexican people and forceful migration into the United States.

Jews: The Makers of Early Modern Berlin, Location: Senior Hall, Room 204

Presenters: Conlan Vance
Faculty Mentors: Ann Le Bar

This paper will discuss how Jews fit into the economic policies of Brandenburg-Prussia in the later 16th century. From Frederick William’s decree in 1671 to allow fifty Jewish families to settle in Brandenburg-Prussia to these families and their descendants becoming immersed in the economy of Berlin through their use in courts but more so through their trading specifically the ways in which they traded and how they used these to free themselves from some of the constraints of German Christian society. Thusly, this will be shown by looking at Jews in Brandenburg-Prussia in the later 17th century, Jews in Berlin, and Jews and their relations to the economic sphere of Berlin. The conclusion of this paper is that Jews in Berlin from the time of their readmission in 1671 had become a necessity for Brandenburg-Prussia in order to rebound from its destruction in the Thirty Years’ War. This can be seen in their extensive use in the courts of Brandenburg-Prussia and the taxes that were extracted from them. However, this can also be seen in the ways that Jews traded with the German Christian majority and how they were able to circumvent some aspects of the society that were used to keep them down. This has expanded on the ways in which Jews used their roles in the economic sphere of Berlin to help improve their lives and possibly of Jews in positions similar to theirs.
O **Mobilization & Conflict of Indigenous Women of Guatemala, Location: Senior Hall, Room 306**

*Presenters: Josiah Van Egdom  
Faculty Mentors: Martín Meráz Garcia*

Women during the Guatemalan civil war (1960-1996) played an integral role for both sides of the conflict in different leadership roles up and down the hierarchy that were not widely thought of as gender normative. Gender norms are critical in looking at how men and women approached the conflict. Breaking these norms and removing barriers for women through the mobilization and participation is an area that will be covered in this research. Additionally, this study addresses how individuals and women perceived these women and the tasks they were undertaking during the civilian conflict. Previous research done in Central America involving violent conflicts have used image theory successfully to determine perceptions of opposing parties (CottamBaltodano & García2011). This research seeks to do the same in applying image theory to the Guatemalan conflict. Specifically, this research focuses on how parties viewed each other through image theory and how indigenous women mobilized themselves and led to the success of incorporating women in the conflict and in the Peace Accords of ‘96. The second component of this research looks at how women were involved in the peace talks and diplomacy that allowed the conflict to come to its end in the late 1990’s. This work relies on peer reviewed historical records and other scholarly sources to assess the perceptions of women and the extent of their participation during the armed conflict in Guatemala. A working hypothesis for this paper is that significant discrepancies will emerge between the actual and perceived participation and mobilization of women in the Guatemalan armed conflict. Finally, the literature will show that the violent government regime health the colonial image of the indigenous population and guerillas that were being targeted for elimination.

*Gender, Guatemala, Mobilization, Indigenous, Image Theory, Conflict*

**College:** CSS

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O **Modeling the Effect of Exclusion Policies on Epidemics, Location: Senior Hall, Room 101**

*Presenters: David Nguyen  
Faculty Mentors: Krisztian Magori*

Mumps is a contagious viral disease that primarily affects school-aged children. Before the introduction of the MMR vaccine, hundreds of thousands of cases occurred annually in the US. While the vaccine was successful in dramatically reducing the number of cases, growing trends against childhood vaccinations since the 1990s have reduced vaccination coverage with consequent re-emergence of mumps. Most jurisdictions of the United States allow parents to exempt their children from vaccination requirements that are mandatory for school enrollment. In response to reduced vaccination rates, some jurisdictions (e.g., Spokane county) grant health officers authority to exclude under-vaccinated students from school during mumps outbreaks for the length of the incubation period (up to 25 days) after their last exposure to a mumps case. During the winter of 2016-17, 333 probable and confirmed cases of mumps were reported in the Spokane area. Under-vaccinated students in 33 schools were excluded during the outbreak. Following the outbreak, parents and anti-vaccine activists campaigned against exclusion policies partly because of the large number of school days missed by under-vaccinated students sent home under the policy. Subsequently, the Washington Department of Health relaxed the language of the exclusion policy, stating that exclusion of under-vaccinated students “be considered,” a departure from the previous recommendation that under-vaccinated students should be excluded from school. In this study, we use stochastic models to study different conditions to evaluate the potential impact of relaxed exclusion policies during mumps outbreaks. We find that exclusion is effective at reducing outbreak sizes and that weakened exclusion policies will lead to mumps outbreaks that last longer and produce more cases. The results of our study will help health officials and policymakers make informed decisions about using exclusion as an infectious disease control policy.

*Gender, Guatemala, Mobilization, Indigenous, Image Theory, Conflict*

**College:** CSTEM
**Sensitivity Analysis of a 3D Piezoresistive Pressure Sensor, Location: Senior Hall, Room 243**

*Presenters: Ethan Lim*

*Faculty Mentors: Awlad Hossain, Heechang Bae*

Piezoresistive materials are characterized by a change in their electrical resistivity when a mechanical strain is applied. Piezoresistive pressure sensors are the very-first products of MEMS (Micro-Electro-Mechanical -Systems) technology to be widely used in automotive, aerospace, household appliances, and biomedical applications. In this research, we propose to analyze the sensitivity of a four-terminal piezoresistive sensor commonly referred to as “van der Pauw (VDP)” structure under uniform transverse pressure loading. The VDP structure is usually fabricated on silicon diaphragms. Due to the experimental limitations during etching silicon diaphragms on which the VDP sensors are fabricated need to be rectilinear. The sensor is not under uniform stress states when the diaphragm deforms transversely under uniform loads. So, there exists a critical aspect ratio for which a rectangular sensing element will provide maximum pressure sensitivity. In this study, we are interested to investigate the sensitivity of a rectangular VDP sensor diffused in silicon diaphragm subjected to uniform pressure load. Several 3D finite element (FE) models are developed using coupled piezoresistive elements by varying the aspect ratio of rectangular VDP elements. The models are developed to simulate the full field stress over the deformed diaphragm in which the VDP element is diffused. The change in VDP output is then analyzed to find the optimum dimension of the sensing element for maximum pressure sensitivity. As MEMS devices require continually smaller size, characterizing the sensitivity of a VDP structure on the performance of a MEMS pressure sensor is extremely important.

**College**: CSTEM

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**The Search for Truth as Recorded in the Desert the Ocean and the Stars, Location: Senior Hall, Room 203**

*Presenters: Chris McMillan*

*Faculty Mentors: Natalia Ruiz-Rubio*

This presentation will analyze a series of documentaries written and directed by Patricio Guzman that focus on reconstructing pieces of the past through interpreting the multitude of historical information embedded within the natural environment relating to the lack of public knowledge surrounding the military coup in Chile and the subsequent dictatorship and the atrocities committed by the military during the years between 1973 and 1990. This research looks at the impact those events have had on the society with relation to the peoples’ confidence or lack thereof in the Chilean government and their personal search for truth and consolation while the military continues to obstinately ignore the past. By looking at how these documentaries use the natural environments such as the water, the desert, and the stars, and the way that history and memory can disappear so easily while still leaving faint traces behind in different forms in order to piece together recent history and reconstruct a national memory that can once again belong to the people (This presentation will be in Spanish).

**College**: CALE

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**The War that isn't Talked About. (Teen Suicide), Location: Senior Hall, Room 124**

*Presenters: Cody Walker*

*Faculty Mentors: Lance Potter*

It is a synthesis and explanation of many studies about teen suicide. It identifies the different reasons for suicide as well as causes. Then it discusses the signs you can look for to help the student. Last it discusses treatment and what is and is not effective.

**College**: CALE

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**"Cool" Voxel Simulation, Location: Senior Hall, Room 201**

*Presenters: Tyelor Klein*

*Faculty Mentors: Dan Tappan*

To find how temperature diffuses through a medium in this case a group of voxels, I designed a simulation that models the heat convection and emissivity between materials. The word voxel is a portmanteau of the words volume and pixel; the easiest way to think of a voxel is a homogeneous chunk of "stuff" in my case that stuff being atoms, albeit in a very crude sense. The idea was to find how long it takes for temperature to equalize with different thermal conductivity and emissivity values for the voxels and also the patterns that arise from doing so in such a way that the simulation is interactive and engaging for a younger audience who might not know anything about heat transfer. Using a simple time-stepped simulation I wrote in C# for Unity, a game engine that I used for graphics and user interface, I was able to accomplish a rudimentary 2-dimensional temperature simulation as well as write a basic system for interacting with and setting up the simulation dynamically during run-time. The result was a fairly accurate albeit crude simulation of a simple 2D rectangle of voxels using simplified thermodynamic equations.

**College**: CSTEM
8:40am – 9:00am

**Activist and Agitator: A Look at Elizabeth Gurley Flynn’s Time with the International Workers of the World.**

*Location: Senior Hall, Room 204*

*Presenters: Kelli Knerr*

*Faculty Mentors: Ann Le Bar*

In the early part of the 20th century industry was booming. The rich were getting richer and the poor were barely getting by. The blatant mistreatment of the workers was out of control. Labor Unions, including the IWW, declared that was not acceptable. This paper will look at Elizabeth Gurley Flynn. Who was she? What was ehr role in the IWW?

*College: CSS*

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8:40am – 9:00am

**Barriers of DACA Recipients,**

*Location: Senior Hall, Room 304*

*Presenters: Aalondra Caro*

*Faculty Mentors: Martín Meráz Garcia*

A Dreamer is an undocumented individual who is protected under DACA (Deferred Action for Childhood Arrivals) this allows for people to carry out a normal life in the US. Meaning they would be able to work with their work permit and be able to attend college. For this project I raise the question of how does being a Dreamer affect your chances of success in America? For this I consult scholarly sources and peer review journal articles that portray the reality in which Dreamers go through. This affects nearly 800,000 individuals whom are trying to pursue their success in this country (Barros 2017). My argument on this paper is that the general population isn't aware of the setbacks that Dreamers go through which keeps leading to an incomplete solution to this problem. Finally the objective of this paper is to provide facts that can help the reader understand the complexity of this Executive Order that if terminated threatens to unsettle the life of almost one million youth in the United States.

*College: CSS*

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8:40am – 9:00am

**Chicanx Historical Inclusions effect in Civic Representation,**

*Location: Senior Hall, Room 203*

*Presenters: Angelica Garcia-Macias*

*Faculty Mentors: Martín Meráz Garcia*

This study will be analyzing California’s civic curriculum to assess the inclusivity of Chicanx social movements that have influenced US policy today. California has just recently voted a bill into law called AB2016 adding cultural studies in social science curriculum in the high schools. Additionally Arizona will be used on this analysis for the lack of inclusive Chicanx history. The states will be analyzed by its curriculum and how expansive their education is teaching Chicanx history in the US. The method of analysis for this study includes peer reviewed journal articles and scholarly sources to assess the extent of civic curriculum that is inclusive of Latinx/Chicanx history and explores the influences on the participation of students in politics and its impact on Chicanx communities in California versus Arizona.

*College: CSS*

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8:40am – 9:00am

**Latino-Owned Business’s: The Future of the US Economy,**

*Location: Senior Hall, Room 302*

*Presenters: Jeffrey Styborski*

*Faculty Mentors: Martín Meráz Garcia*

In recent years the United States has witnessed an unprecedented rate of growth in the number of Latino-Owned Business’s (LOB) which has dramatically boosted the US Economy. However while the number of LOB’s has increased the sizes of these individual businesses hasn’t growing at a rate that’s half the national average and leaving trillions of dollars and countless jobs out of reach. In search for a solution this research bases its information in a variety of sources including government agencies and partnerships between higher education and the LOB community among them Stanford University and the Latino Business Action Network. Through this research this paper intends to show the advantages of a relationship between higher education and LOB’s as well as propose how such a relationship would work. As the Latino population in the US continues to grow and establish businesses it is clear how crucial it is to the economy that LOB’s get the help they need to grow.

*College: CSS*
Latino/a Presence in Media

Presenter: Keiton Klein
Faculty Mentors: Martín Meráz Garcia

In the United States the Latino/a population is very poorly represented in the media by being both misrepresented and underrepresented in all forms of media including: newspapers, television news, and movies. When and where there is representation typically is a negative portrayal of a Latino/a character or story. This passive racism assigns these people a negative connotation regarding their ethnicity and as a result has a destructive effect on their population. Through the use of scholarly articles and documentation research will show how these stereotypical portrayals negatively impacted Latino lives. The misrepresentation of Latina/os in mainstream media is an issue of significance because this minority group accounts for almost a fifth of the United States’ populace.

Keywords: Underrepresentation, Misrepresentation, Stereotype, Latino/a

Survey of White Nose Syndrome via Pseudogymnoascus Destructans and General Health with Disease Progression in Little Brown Bats (Myotis lucifugus) in Lincoln County Washington

Presenter: Alejandro Batalla, Shelby Fettig, Matt Hellem, Elizabeth Peoples, Natalie Rudnev, Nate Sik
Faculty Mentors: Krisztian Magori

Little brown bats (Myotis lucifugus) are found throughout the United States. Currently little brown bat populations are threatened due to a fungal skin infection caused by Pseudogymnoascus destructans called White Nose Syndrome (WNS). WNS affects bats during winter hibernation and infected bats utilize high levels of energy to fight the infection. Bats wake up from hibernation in search of insects for food to compensate for energy usage which is an issue during the winter and leads to starvation and ultimately death. WNS is mostly prevalent on the East Coast where it is estimated to have killed 94% of bat populations within the last few years. However, records of disease incidence of WNS shows progression to the west coast; WNS has been recently found in bat populations in western Washington. Our study proposes a survey of bat populations in Lincoln County with local Fish and Wildlife Services to determine health of little brown bats in the area. We will use standard methods to indicate infection status as well as measure wing-span and weight. We will also take counts and samples of ectoparasitic wing mites found on the bats to determine if they correlate with infection and spread of disease. It is important to closely watch local bat populations for WNS to better understand the disease and to keep population declines to a minimum.

The Importance of Identifying Cultural Codes in Academic Texts for English Language Learners

Presenter: Natalie Giles
Faculty Mentors: LaVonna Reeves

Imagine an advanced English language learner coming to The United States of America for the first time to pursue endeavors of higher education. For this example the student has had extensive training in English in their home country and are coming to The U.S. to earn a degree at an American institution with the goal of returning home and using their degree to advance themselves in their careers. It’s the first day of English Composition 101 and the first thing they are presented with is a wordy syllabus explaining the outcomes and objectives of the course and policies of the classroom and the university. This lengthy document can be intimidating even to students whose heritage language is English and they’ll most likely never look at it again expecting the instructor to fill in misunderstandings as the course progresses. For first-year college students the course load can be intimidating enough alone the expectation that they have the necessary skills to succeed and progress at the postsecondary level. As it is most of my English 101 students have a difficult time jumping in and analyzing difficult texts regardless of their L1. A key concept in the ability to comprehend academic texts is being able to decipher the cultural codes any given author uses to discuss their argument. The author generally assumes a certain level of knowledge of cultural codes on the readers’ part and therefore does not take time unnecessarily explaining the various definitions of the language they use in terms of how it applies to their topic much like an academic syllabus. With this idea the inexperienced reader is left to fill in the missing information that comes with not recognizing the cultural codes being used which often leads to misinterpreting meaning because of an inability to approach the text on a deeper level. If reading critically is difficult for students whose L1 is English one can only assume that it will be just as challenging for English language learner.
The Rules of Being Weird, Location: Senior Hall, Room 124
Presenters: Nicole Schwingel
Faculty Mentors: Elizabeth Kissling
Alice in Wonderland is a classic story detailing a heroine’s journey through a strange land to defeat an even stranger creature. Disney released its own version of this story in 2010 which included a message to viewers to let their freak flag fly. While the film openly encourages the audience to express themselves, applying an oppositional gaze reveals implicit messages that undermine this expression. Alice and the White Queen compete for superiority over their female counterparts throughout the film. Their competition shows the audience who can express themselves without consequence and who cannot. Moreover, Alice in Wonderland does not have any person of color appear on screen which limits who audience members can identify with. Alice and her male companions also portray stereotypical gender dynamics which send harmful and contradictory messages to viewers. Although the producers of Alice in Wonderland uphold negative cultural ideals, the film’s overall message to express one’s self is positive and should be embraced by all people.

College: CSS

Considering the Needs of Older Adults in Program and Research Design and Implementation, Location: Senior Hall, Room 203
Presenters: Joel Reeves
Faculty Mentors: Anna Tresidder
Simply addressing identified needs of older adult populations does not correlate to successful or sustainable results. When designing programs or research intended for older adults there are unique considerations that are frequently not part of the development process. Different approaches to ensuring the cultural, historical, methodological, and practical appropriateness are needed. Real world examples from the Aging in America 2018 Conference will be shared that demonstrate how adaptions during the development and implementation phases increased older adult engagement while being cognizant of the special needs of various older adult populations.

College: CHSPH

Cultural Understanding of Plagiarism in English Language Learners, Location: Senior Hall, Room 221
Presenters: Min Yi Liang
Faculty Mentors: Lavona Reeves, Justin Young
In this research paper, the author explores plagiarism among students from different countries. The definition of plagiarism is different for every country. In the United States, taking others’ work without giving them credit is considered plagiarism. Many English Language Learners (ELLs) do not understand the meaning of plagiarism in American English writing courses. With the lack of knowledge of citing appropriately, many ELLs unintentionally plagiarize. This research paper builds on the work of Rebecca Moore Howard, Tricia Serviss, and Tanya K. Rodrigue’s in Writing from Sources, Writing from Sentences which was informal research that examined how students use sources. Applying Howard, Serviss, and Rodrigue’s findings to ELLs, the author focuses on students’ cultural awareness of ownership of idea. She argues that students may not know how to cite appropriately and concludes that citation should be taught explicitly. Some multilingual writers come from countries like China where much memorization is done, and writers who consider copying without giving the author credit is showing respect for the writer. Since the definitions of plagiarism are different among countries, the ELLs are struggling to succeed in the American English writing courses. The author will talk about the different ideas of plagiarism in the different countries and introduce summarizing and paraphrasing which can help ELLs to understand plagiarism.

College: CALE

Data Representation for Performance Analysis in eSport, Location: Senior Hall, Room 201
Presenters: Grigory Ostanin
Faculty Mentors: Dan Tappan
Computer gaming has advanced remarkably in the last 20 years. Players want to compete against others and today’s games provide this experience. Gamers are willing to compete to become the finest in the world. This environment has led to the development of eSport which is a sport based on electronic games. It has various games with many championships around the world and large prize pools. Data analysis of games is an important tool for gamers to find weaknesses in opponents as well as opportunities for self-improvement. Defense of the Ancients 2 (Dota 2) used in this work is a competitive game for two five-player teams where players can assume many roles with different heroes. The goal of this work is to collect data on the performance of two of the most popular heroes from opposite roles and to present it visually as graphs for analysis.

College: CSTEM
9:00am – 9:20am

O Exploring Whether High Schools Make the Bridge for Higher Educational Institutes Suitable for Latinx Students., Location: Senior Hall, Room 304

Presenters: Adrianna Amarillas
Faculty Mentors: Martín Meráz Garcia

Latina/o’s represent the largest college going minority in Americabut only 40% appear in 4-year institutions. Latina/o’s have been identified as the minority in the United States but now represent the majority of the minority. With the demand for higher education and degrees this study uses peer review and scholarly sources to explore whether or not higher education institutions in the U.S are fully prepared for the increase of diversity. Being the second largest ethnic group this work attempts to identify addressing barriers that make it harder for Latino students achieve higher education. Barriers such as the lack of skills needed, financial limitations, family or culture, gender expectations and possible micro-aggression found with the lack of diverse teachers. This study accesses how could lowering the barriers for future Latina/o students help their path to higher education?

College: CSS

9:00am – 9:20am

O From Adolescence to Adulthood: Understanding the Reality of Substance Use An In-Depth Ethnographic Interview, Location: Senior Hall, Room 124

Presenters: Ereisa Morales
Faculty Mentors: Edmundo Aguilar, Christina Torres Garcia

Scholars indicate Latinx youth as being at highest risk for psychosocial problems such as substance use (GilWagner and Vega 2000; as cited in Cruz-Santiago and Ramirez Garcia 2011). Yet consensus on the specific reasons as why Latinx adolescent populations are becoming the most vulnerable to substance use has not been concluded. The purpose of this study is to focus on the lived experiences of two Latina siblings that chose different paths during adolescence in their decision to engage in substance use. Specifically it seeks to understand the motives and decision-making process in the engagement of substance usage during adolescence and into adulthood. The methodology that will be utilized is an in-depth ethnographic interview as well as an auto-ethnography work. This will potentially provide a better understanding about the experiences and/or conflicts that Latina adolescents are facing today.

College: CSS

9:00am – 9:20am

O In the Shadows of Monotheism: The Canaanite Goddess Asherah and the Hebrew God Yahweh, Location: Senior Hall, Room 204

Presenters: Lauren Kuharski
Faculty Mentors: Georgia Bazemore

In the set of documents known as the Old Testament the Prophets of the ancient Israelite peoples vociferously identified themselves as separate and different from their kinsmen among whom they lived known generically as the Canaanites. While the Canaanites boasted of a pantheon of gods and goddesses the Israelite Prophets declared that they worshipped a single deity only the male deity known as YHWH. However close and critical examination of this same set of documents shows clearly that not all of the population of the ancient Israelites adhered to such strict monotheism. In particular there is strong evidence of the worship of a singular important Canaanite goddess the tree goddess Asherah. This paper will explore the evidence of the worship of Asherah in the Old Testament. Most attention will be paid to the evidence provided by the Prophets themselves whose condemnations of this goddess provide the best evidence for her worship. The relationship of Asherah with the primary male deity of YHWH will be discussed. Most important however is the reasons or causation of why the worship of this deity by the ancient Israelites would be the cause of such condemnation and prohibition despite its popularity among the general population.

College: CSS
Material Characterization of 3D Printed Samples for Different Layup Orientation, Location: Senior Hall, Room 243

Presenters: Viktor Black  
Faculty Mentors: Alek Bae, Matthew Michaelis

3D Printing is becoming an exceedingly popular method for fabricating various components both in industry as well as at the hobbyist level. While it is often used for decorative trinkets it can also be used to create structural components. Inherent to 3D printing parts are built in layers and this results in a certain amount of structural uncertainty discontinuities as well as causing stress concentrations where each layer is fused to the previous. This research explores the differences in mechanical properties and fatigue life cycles of a 3D printed component based on build orientation. Previous research investigated the yield strength and ultimate strength of components with different orientation. Building on the tensile data from previous research several fatigue tests were conducted and used to generate SN curves. In addition to expanding on the previous tensile dataset several more tensile tests were conducted to expand on the existing data set for more accuracy. Also the effect of surface treatments was explored to determine whether weak orientation induced strength can be increased through post production treatments.

The overall goal of this research is to determine a safety factor that can be utilized in design calculations which accounts for the various possible stresses induced with different build orientations.

College: CSTEM

The Impact of Standardized Testing on Latino Students, Location: Senior Hall, Room 302

Presenters: Jose Hernandez  
Faculty Mentors: Martín Meráz García

This research reports on what Standardized Test are telling us about the type of education Latino students are receiving and how it impacts them and the schools they attend. The method of analysis for this research relies on multiple peer-reviewed articles and journals to draw conclusions on the impact of standardized testing. Upon examining the data it has become clear that standardized testing indicate Latino students are not getting the quality of education that their white counterparts are receiving. Standardized testing has clearly shown the education gap which has minimized future educational opportunities due to the reduction of federal funds to schools with predominantly Latino population.

College: CSS

The Link Between Latinx and American Music, Location: Senior Hall, Room 306

Presenters: Koby Sonnabend  
Faculty Mentors: Martín Meráz García

Music is something that is constantly changing along with its listeners. What is unique about music is the affects it can have on communities and specific groups of people while in turn those people change the future music that will be released in the future. As the Latino population grows in the U.S. the impact felt by the culture follows suit. Latinx musical elements are becoming an integrated part of American popular music which coincides with the increasing presence of Latinos in America. This paper will describe the traits present in Latino music and relate them to developing traits in modern American music. Celebration and cultural pride for example are some of the most common themes from traditional Latinx music and are present in some of the most popular music in modern-day America. The sources used in this study are peer-reviewed journal articles and textbooks as well as Billboard's online archive.

Keywords: Latinos, Music, Culture, Popular Music, Latinx Music

College: CSS

The Prevalence of D. immitus in Spokane County, Location: Senior Hall, Room 101

Presenters: Hannah Bergquist, Lacey Sell, Benjamin Thompson, Irina Vasilchenko  
Faculty Mentors: Krisztian Magori

The objective of our study is to test for the prevalence of D. immitus (more commonly known as heartworm) in the Spokane County region. D. immitus is a parasite that can be transmitted to a variety of mammals via female mosquitoes. The three most common genera of mosquitoes in Spokane County that can transmit this parasite are Aedes, Anopheles and Culex. Heartworm is a zoonotic disease that can affect both humans and animals. The reason this is important to study is because there is unknown prevalence for this disease in Spokane County. Our plan for this study is to test for D. immitus in canines by contacting animal rescues/shelters and clinics to obtain blood samples. The blood samples will be tested by blood smears and staining. The second part of our study will focus on the vector of this parasite - mosquitoes. We will trap mosquitoes provide them with a blood meal that will allow maturation of the parasite in the mosquito then dissect these mosquitoes to assess for the prevalence of D. immitus.

College: CSTEM
9:20am – 9:40am

**A Large Eddy Simulation (LES) Analysis of a Progressively Thinned Forest, Location: Senior Hall, Room 243**

*Presenters:* Zach Ward  
*Faculty Mentors:* Jason Durfee

Fluid flows such as blowing air can be divided into two flow regimes: laminar or turbulent. Laminar flows are easily described mathematically but turbulent flows are much too unpredictable for an exact solution. Consequently various turbulent flow models have been developed over the years. This research involved using a turbulence model called Large Eddy Simulation (LES) as utilized in a software package provided by the National Center for Atmospheric Research (NCAR). The program is called the Weather Research and Forecasting Model or WRF. The specific type of turbulence that was being modeled for this research involved airflow through a progressively thinned forest. Forest thinning is becoming an important tool in minimizing potential fire danger as well as managing invasive species. Consequently it is important to know how thinning a forest alters the characteristic air flow through the forest. Different densities of the forest were run through the WRF model to provide a large amount of time-dependent data. In order to access the vast data files programs were created in the Matlab© programming environment. The programs written in Matlab© allowed data plots to be created for the average longitudinal velocity the average turbulent kinetic energy as well as plots of the time dependent turbulent eddies in the flow field. Using the output from these programs allowed analysis of how the turbulent flow changed as the forest density was made thinner and thinner.

**College: CSTEM**

9:20am – 9:40am

**Academic Performance of Latino Students at Predominantly White Institutions, Location: Senior Hall, Room 306**

*Presenters:* Marixza Torres  
*Faculty Mentors:* Martín Meráz Garcia

This project explores the academic performance of Latino students who attend school at predominantly white institutions. The goal of this paper is to compare the academic performance of Latino students attending universities that are more diverse versus institutions that are predominantly white. Studies have shown that Latinos students attending predominantly white institutions experience more hardships because of the outdated curricula that is less inclusive of their experiences. This work uses peer review and scholarly sources as the method of analysis to draw conclusions on best practices by colleges and universities on retention and graduation rates of Latino students.

**College: CSS**

9:20am – 9:40am

**An Interconnected Perspective: English Language Learners’ Awakening of their Authentic Self through the Acquisition of an English Voice, Location: Senior Hall, Room 221**

*Presenters:* Nora Vralsted  
*Faculty Mentors:* Lavona Reeves, Justin Young

English as the present lingua franca has resulted in vast contributions in research for the field of Second Language Acquisition (SLA) and the pedagogies of Teaching English as a Second Language (TESL). These contributions arise from the growing acknowledgement of World English (local and regional dialects of English) and the conflicting perspectives as to how World English is received and attended to in American higher-education classrooms. Within the English language learner (ELL) classroom we see an even greater need for this research as the divides in instructor approaches and student needs are multifaceted. To some requiring students to neglect their “authentic” voice and to develop an “authorial” voice (which is considered an element of Standard American English (SAE) the reigning discourse of American higher educational institutions) is an injustice. Alternatively by acquiring this discourse ELLs have the opportunity to engage in the language through a highly developed sense of self—one that is aware of their thoughts in multiple discourses. This paper will explore the possibility of the interconnectivity of the “first-language self” (L1) and the “second-language self” (L2) and how the learning process can facilitate ELLs’ awakening of a more enlightened being by examining the acquisition of the English language through an ecofeminist lens.

**College: CALE**
Black Panther: Superhero Action with the Female Gaze, Location: Senior Hall, Room 124

Presenters: Tiffany Collins  
Faculty Mentors: Elizabeth Kissling

The superhero action film Black Panther, which was released by Marvel Studios in the winter of 2018, is the newest comic book story to come to the big screen. However this particular film is a leap forward for Marvel Studios, but not only for the reason many are attributing to it. Black Panther is not the first black superhero movie, it is not even the first black superhero movie from Marvel, however it is one of the first movies to show superhero action using the female gaze.

Marvel Studios had begun to show its superhero movies with a bit of the female gaze before, there is some argument that Thor was the first to do that, but it was only a few scene here and there and not the whole film. Black Panther however is a different story. The female gaze exists in this film in a way that has never been seen before. The women of Black Panther are a large part of the reason that he is so invincible.

This video essay seeks highlight the three main female characters Shuri, Nakia, and Okoye, and how their contributions to the story is essential to Black Panther’s success. This essay will also show how by viewing the action with a female gaze you give the fictional world more depth and reality. By using the female gaze, this video essay will highlight not only the importance of telling stories through a different gaze, but the impact it has on both the audience and those behind the scenes.

College: CSS

Latino Communities and the Health System, Location: Senior Hall, Room 302

Presenters: Savanna Stockman  
Faculty Mentors: Martín Meráz Garcia

This research project is to give an insight into the relationship between latinos in both careers and lifestyle. There are thousands of graduates each year into the medical field; yet the percentage of those of latino descent is below average. This research paper will show the involvement of latino communities within the medical field. The reasons why the percentage of those in the field is lower than that of any other ethnicity. Surveys of latino culture would suggest that many feel that the Healthcare system doesn't satisfy their needs and institution rates of latino medical graduates is significantly lower. This is of big significance due to latinos being 17% of the United States population and will continue to rise. Throughout the project the struggle latino medical students will be noticed and the healthcare system that these communities are involved with will become apparent.

Keywords: Health, Education, and Communities

College: CSS

Latinos in the Military, Location: Senior Hall, Room 304

Presenters: Austin Johnson  
Faculty Mentors: Martín Meráz Garcia

What roles have the Latino American community had in the United States military historically and how did they impact it? How are Latinos shaping the military today? Through historical recordspersonal accountsand reputable journals this study leads to the conclusion that Latino Americans regardless of the racial tensions of the past have always been ready and willing to serve for a multitude of reasons includingpatriotism, educational, benefitseconomic advancementand most importantly equality. There is a trend of increasing numbers of Latinos enlisting in the military. Since the 1980s the number of Hispanic active-duty troops has risen from barely 3% to 13.4% in 2015 according to study by the Population Reference Bureau (Mady Weschler Segal). These findings conclude that the military has benefited greatly and been greatly shaped by not just the long list of heroic award winning Latinos who have served but also the impact that their service had on public opinion.

Keywords: Latino, patriotism, military, equality, advancement

College: CSS
Perceptions of Social Capital and Food Insecurity among Residents Living within the Bemiss Neighborhood in Spokane Washington, Location: Senior Hall, Room 203

Presenters: Lisa Coyle
Faculty Mentors: Boyd Foster

An individual’s social network provides social capital resources made available through their group affiliation. This includes things like appraisal to guide decision making, shared access to information, emotional support, and instrumental forms such as help with babysitting or transportation assistance (Berkman, Kawachi & Glymour 2014). Social capital can be further broken down into subgroups of social bonding and social bridging. Bonding social capital generally refers to close relationships an individual has with kinship and close friends. Bridging social capital refers to weak ties an individual shares with groups who may not be in their immediate circle but still provide social resources by way of shared group identity such as neighbors (Uphoff, Pickett, Cabieses, Small & Wright 2013). Previous research demonstrates social capital to be negatively associated with food insecurity (Dean & Sharkley 2011; Martin, Rogers, Cook & Joseph 2004). This paper examined the relationship between social capital and income among residents living within the Bemiss Neighborhood in Spokane, Washington. A particular emphasis was given to food security. 

College: CHSPH

Queen of Heaven: Ancient Israel Folk Religion, Location: Senior Hall, Room 204

Presenters: Rachel Tyson
Faculty Mentors: Georgia Bazemore

The literary text of the Old Testament stating the official position of the priests of Israel and Judah had been throughout the centuries the only evidence which historians possessed for the history of the Jewish religion. In the last century however, a new discipline of archaeology has provided new and very different evidence for the practice of folk religion among the ancient Israelites. This paper will build upon the seminal work of Bill Dever to explore the worship of the goddess Asherah in Israelite folk religion. Asherah was the fertility goddess worshipped by the Canaanite people. The function of this goddess is to give comfort to women during childbirth processes, she governs conception, birthing, nursing of newborns. Further, this goddess is responsible in general providing food for the family of the worshipper. This paper will concentrate on the role of Asherah as a household goddess; her more formal role in the public or official religion will not be examined. The cult artefacts and dedicatory object assemblage to the household Asherah is explored. Household shrines dedicated to Asherah included dedicatory female figurines, stands meant for sacrificial ritual objects, along with the purpose of divining and other cultic paraphernalia.

College: CSS

TEALS Team 9 Motion Controlled Car, Location: Senior Hall, Room 201

Presenters: Samantha Agather, James Bayman, Cody Machine, Megan Ostby
Faculty Mentors: Brian Kamp

This was done as a senior project to take to Microsoft’s campus in Redmond, WA to represent EWU. The project itself uses a webcam and image processing technology to translate hand motions relative to a human face into commands that drive the car. This project will eventually be extended to accommodate more than four people at a time.

College: CSTEM

The Effectiveness of Oxalic Acid Treatment on Varroa destructor Mites in Honey Bee Populations, Location: Senior Hall, Room 101

Presenters: Nicole Bilyeu, Daniel Franzese, Emily Nimri, Sophia Owens, Morgan Sample
Faculty Mentors: Krisztian Magori

Honey bee health has been declining for years worldwide partially due to Varroa destructor mites. V. destructor mites attach to the bees and affect their ability to sustain an effective immune response which leads to increased mortality rates. Honey bees are a key contributor to pollination of food crops and wild plants which is estimated to be worth $210 billion in total agricultural economy. Our objective is to determine how a chemical treatment of oxalic acid vapor affects V. destructor mite accumulation in honeybees over a three-week period in two different controlled environments around Cheney. Upon honey bee arrival we will test mite accumulation and then every week after the chemical treatment. We will analyze the abundance of mites in two samples of honey bees from each location. We will conduct a t-test in order to quantitatively measure the effectiveness of oxalic acid vapor treatment and reduce the levels of V. destructor mites on the honeybees, therefore, reducing the transfer of pathogens to the colony. We hope to provide data on effective ways to reduce pathogens affecting honey bee populations.

College: CSTEM
**Chicano Healthcare, Location: Senior Hall, Room 304**

*Presenters: Branden Stevenson
Faculty Mentors: Martín Meráz Garcia*

During the 1980's 37% of Chicanos did not have adequate health coverage compared with the 13% of the rest of the United States population. Also only 53% of working Chicanos and Chicanas had health coverage. Among white people under the age of 65 73% had health benefits. Under 50% of Chicanos and Chicanas had similar coverage. According to Kaiser Family Commission who has done research on the healthcare gap between whites and Chicanos, little progress has been made on this front. In 2017 (start of President Trump's term) white people under the age of 65 have the most coverage with just 13% of white's uninsured while 32% of Chicanos are uninsured. This number could be as high as 50% if it was not for the Affordable Care Act (ACA). Over 50% of Chicanos ages 0-18 use Medicaid or the Affordable care act and 16% of Chicano kids are uninsured while only 7% of white children are uninsured. This raises the question of are Chicanos still getting unfair health coverage because of ethnicity? In conclusion the results confirm that there is still an existing gap between Whites and Chicanos for healthcare coverage. However, scholarly sources state that Chicanos, especially children are gaining more health coverage but with a president who is trying to repeal Medicare and Obamacare it could lead to drastic changes in the amount of Chicanos who have healthcare.

*College: CSS*

**Dual-Language Immersion, Location: Senior Hall, Room 306**

*Presenters: Joseph Miller
Faculty Mentors: Martín Meráz Garcia*

While Latinos make up 18% of the American population many analysts are noticing a problem with their education (FloresA. 2017September 18). One attempt to confront this problem is by the implementation of Dual-Language Immersion programs. The attempts to successfully transition first generation Spanish-speaking children into a predominantly English-speaking society like America have produced negative effects on their cognitive development. This establishes the premise for educational hardship throughout their scholastic development. Research has shown that Dual-Language Immersion has become an answer for this issue addressing the gaps and pitfalls that first generation Spanish-speaking children experience in a basic educational platform (ValdesG. 1997). As an example, schools in Portland, Oregon have implemented many Dual-Language programs that operate using a lottery system. They are becoming quite popular yet some elements of these programs have sceptics suggesting that this could be leaving Latinos behind. In particular, this paper will be exploring the impact of dual language programs on Latino/o’s and how caucasian families are also seeing the benefits of having their child attend Dual-Language Immersion programs by giving them the opportunity to be proficient in a foreign language at a young age possibly benefiting them professionally in the future. Studies have shown that there are many benefits to Dual-Language Immersion programs not just reflected in standardized testing but also enriching local society and developing well-rounded students. Keywords: Education, Development, Language, Culture, Dual-Language Immersion.

*College: CSS*
Image Processing and Response, Location: Senior Hall, Room 203

Presenters: Mason Kupp
Faculty Mentors: Elizabeth Tipton

With the goal of examining how the human mind processes images, a survey with different types of images was created and administered to subjects in the Eastern Washington University business department. The images differed from each other in two ways; some were graphs/graphics and charts/while others were photos. In addition, the topics of the pictures and graphics varied from politically charged issues such as immigration or climate change to decidedly apolitical subjects like dogs or movies. The survey contained two slides for each topic, both timed and with a scale to gauge response level. One slide contained a graphic and the other contained a picture. The strength of response and response time were compared across the different categories.

Keywords: Image processing, Data Visualization, Emotional Response

Latinos In Higher Education, Location: Senior Hall, Room 302

Presenters: Teala Frazier
Faculty Mentors: Martín Meráz García

In Washington State the population of Latinos is disproportionately under represented in higher education and completing a degree. The percentage of high school age Latinos have a disproportionate drop out rate compared to other populations and as a result do not pursue further education. This study will examine whether the dropout rate in the State of Washington since 2000 is the primary reason for the lower representation in college or if there are other factors including socioeconomic or cultural. Sources used to study this issue include newspaper, U.S. census data and scholarly articles. The research presented in this paper will further explain how important financial stability is in relation to academic success.

College: CSS

Metabolomic Characterization of a Host Shift by an RNA Virus, Location: Senior Hall, Room 201

Presenters: Emily Hendrix
Faculty Mentors: Luis Matos

It is likely that the reason why some host shifts fail while others succeed lies in the early stages of the encounter between its pathogen and the novel host immune response. Drosophila have long been utilized as a model organism in research and have played an integral part in improving our understanding of immunity, metabolism, and virology. Drosophila are easily cultured in very controlled environments, which allows for sensitive metabolic assays. This further our understanding of the extrinsic effect on metabolism as even minor events can result in significant changes in measurable intermediary metabolites and terminal metabolites. One condition that can affect metabolite composition is infection. It is my hypothesis that the effects a pathogen may have on a novel host versus a native host can be observed through metabolomic profiling. Here, I have injected two Drosophila species with the Drosophila C virus to determine whether host status (native or novel) will lead to a differential response in host fitness and/or metabolite composition. Elucidating this early interaction will further our overall understanding of the interaction between pathogens and their novel hosts at the moment of first encounter; a moment that has been consistently overlooked in natural host shifts.

College: CSTEM

Popular Culture Education and Philosophy: Creating a K-12 Program, Location: Senior Hall, Room 204

Presenters: Corey Horn
Faculty Mentors: Terrance MacMullan

According to a study conducted by the Philosophy Learning and Teaching Organization (PLATO) there are several deficiencies within traditional K12 education. Two-thirds of 8th graders cannot read at a proficient level score below proficiency in math. Further, three-quarters of 8th graders cannot proficiently write and are below proficiency in civics. In this paper I will aim to show that there is a growing need for philosophy to be introduced in primary and secondary education. Philosophy improves cognitive developments in youth k-12 and creates an environment that allows the youth to have an honest open dialogue. I will also posit that using pop-culture as a vessel for dissemination will make the information more accessible to the youth and allow them to relate to the material in a more natural way. Finally, after providing the format for this program I will give an example of this style in practice and the intellectual development that occurred within the student population.

College: CSS
The Best Movie on Broadway: The Influence of Broadway Musical Theatre on Disney’s Beauty and the Beast, Location: Senior Hall, Room 243

**Presenters:** Mica Pointer  
**Faculty Mentors:** Drew Ayers

On December 29th, 1991, Frank Rich, a theatre critic for the New York Times, published a year-in-review article of the best works found on Broadway that year. "The best Broadway musical score of 1991," Rich says, "was that written by Alan Menken and Howard Ashman for the Disney animated movie "Beauty and the Beast"." However, as both Rich and past Disney CEO Michael Eisner point out, "it was a movie," not a stage Musical. What was evident to both these people was that there was a clear correlation between the Disney style of movie making exemplified in Beauty and the Beast and the tradition of Broadway musicals found in New York. The question I pose is just how strong an influence the Broadway tradition of musical storytelling had over the way in which Disney’s Beauty and the Beast was conceived and created, thus kick-starting a stylistic revolution in what came to be known as the ‘Disney Renaissance’ and even influencing Disney film making to this day.

**College:** CALE

There is no Heterosexual Explanation for Dean Winchester, Location: Senior Hall, Room 124

**Presenters:** Olivia Manusia  
**Faculty Mentors:** Elizabeth Kissling

Supernatural has been on the air for 13 long seasons making it the longest running fantasy series on TV and it doesn’t seem like it’s going to be stopping any time soon. As if fighting and killing monsters, demons, angels and meeting God weren’t manly enough, the brothers Sam and Dean Winchester, eat bacon cheeseburgers every other episode and drive around the country in their dad’s ’67 Impala listening to classic rock. There are a few other constants in the show: 1. Each season will attempt to one up the previous one. 2. Women will almost always die within three to five appearances 3. Dean may not be as straight as he seems at first glance. This multifaceted analysis explores what Supernatural is at its center and some consistent themes and tropes particularly concerning portrayal of women and the reasons why much of the audience interprets Dean Winchester as bisexual despite the show not stating so outright.

**College:** CSS

Turnbull Mosquito Population Survey and Lab Colonization, Location: Senior Hall, Room 101

**Presenters:** Trevor Dzedzy, Chiayo Koffman, Sonja Kuhta, Samantha Leader, Shannon Robbins  
**Faculty Mentors:** Krisztian Magori

Mosquitoes serve as an important piece in the food chain and act as a vector for many diseases. We will be collecting mosquitoes in Turnbull National Wildlife Refuge, Spokane County, Washington in April and May 2018. Data from previous years has been collected from May through September, finding five genera Aedes being the most prevalent. Our collection will demonstrate populations from earlier in the season, comparing both quantity collected and distribution of genus found. The objective of our project is to further understand the mosquito population in the wildlife refuge by expanding on mosquito collection data from previous years and using these captured mosquitoes to establish a breeding colony. Our goal for breeding is to determine the optimal conditions to successfully allow the colony to reproduce. We will test for cage structure size, density and male to female ratio of the starting lab population to find the best conditions for breeding. To evaluate the quantity of early season mosquitoes on site we will use a pair of Carbon Dioxide traps to collect samples at the locations that were previously measured. Because we are collecting mosquitoes one month earlier in the season, we expect to find smaller sample sizes.

**College:** CSTEM

Daring to Disturb the Universe, Location: Senior Hall, Room 124

**Presenters:** Tricia Kiehn  
**Faculty Mentors:** Ryan Simmons

This essay explores the human need to discover a place and purpose in the universe by comparing two superficially very different literary characters: Janie of Zora Neale Hurston’s novel "Their Eyes were Watching God" and J. Alfred Prufrock of T. S. Eliot’s poem “The Love Song of J. Alfred Prufrock.” I argue that the two modernist works, despite their outward differences, explore similar questions and issues including the difficulty of finding one’s place in the universe and the necessity of not allowing fear to stand in the way of personal growth and discovery. Janiel concludes navigating life seeking answers despite fear and criticism to discover her Self and freedom, while Prufrock lets the possibilities distract and overwhelm him until it is too late.

**College:** Community College of Spokane
**How to Enhance Reader Engagement Through Social Media, Location: Senior Hall, Room 204**

Presenters: Grace Pohl
Faculty Mentors: Jamie Neely

Reader engagement has varied over the years in the field of journalism and it has dramatically increased with the evolution of social media. This project examines the use of social media such as Facebook and Twitter to enhance reader engagement for news organizations. This research includes an interview with The Spokesman-Review’s online producer Rob Kauder and examines academic studies on how Twitter is used in four different metropolitan newspapers. Overall, there are multiple ways that companies can track readers including the average of pages per session, duration, the bounce rate, returning visitors versus new visitors, number of shares from articles and engaged time. Reader response can also depend on the time of the day that the posts are shared and the kind of content that is being promoted on social media.

**College**: CALE

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**Inmate Perception: Family Dynamics and Recidivism, Location: Senior Hall, Room 302**

Presenters: Mario Aguilar
Faculty Mentors: Scott Mathers

The purpose of this research is to examine how family dynamics impact male and female inmates’ perspective on the likelihood of re-offending. The specific research question surrounds whether family contact promotes prison adjustment and prevents recidivism. The data analysis examines data from an extensive questionnaire survey of 726 male and female inmates from a Correctional Facility in the Southeast of the United States. The study presents the findings regarding family dynamics in terms of support, communication, closeness, and satisfaction with relationships. The data analysis evaluates the importance of a support system and an inmate's adjustment to prison as potential factors that reduce recidivism.

This research examines an inmate’s relationships with an emphasis on the importance of children compared to other family relationships. Some of the main themes of analysis are variables such as an inmate’s level of satisfaction with their child’s living situation, future goals to live with that child, and the frequency of contact. These variables are considered in light of participation in prison programming and attitudes about the major goal of prison. Findings are interpreted through the theoretical perspectives of reintegration and prison adjustment.

**College**: CSS

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**Latinos in the Entrepreneurial World, Location: Senior Hall, Room 203**

Presenters: Kaila Sundquist
Faculty Mentors: Martín Meráz Garcia

This paper will inform the audience and broaden their views on Latinos as entrepreneurs and business owners in the United States. It will show their struggles, tasks, successes, and processes of being a Latino entrepreneur in the U.S. More specifically, it will explore data and statistics of this demographic group being business owners. The main method of research consisted of scholarly articles. The hopes of this paper is to show the readers a different perspective on Latinos in the business world and shine a light on the issue of them being a misrepresented group in the American society. By the end of this paper the audience should understand Latino entrepreneurs and their struggles and accomplishments from a whole other point of view.

**Keywords**: Latino, Entrepreneur, Business

**College**: CBPA

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**Living Shadows: The Cinematographe and Bringing Film History to Life, Location: Senior Hall, Room 243**

Presenters: Mica Pointer
Faculty Mentors: Drew Ayers

Learning by rote is one thing but learning by doing is another. Perhaps one of the most difficult areas of study to learn by doing is History. With most of the ideas and subject matter having taken place in the past, most people’s experience of history is mediated through history textbooks. But one way history can be accessed in an immediate way is through Historical Reenactment. This is exactly what I set out to do after a class on early film history. Through building a reproduction Cinematographe of the earliest motion picture camera and putting it to use at the Bannack Days living history event by taking the theories out of the classroom and putting them into practice, we learned about the making of early films which went beyond what could be garnered from the pages of a history textbook. The presentation will include context of early film history, the process of me building the reproduction Cinematographe, what I learned about early filmmaking by working with analogous equipment in an analogous context, and a few side-by-side clips of vintage silent films together with ones I made with the reproduction camera.

**College**: CALE
10:00am – 10:20am  O  Screen to Screen: Using Popular Culture to Teach Digital Composition, Location: Senior Hall, Room 221
Presenters: Alex Dew
Faculty Mentors: Justin Young
A knowledge of digital composition is becoming increasingly important to preparing students to be critical consumers of and contributors to both academic and mainstream discourse. Over the course of my research I have come to believe that popular culture is the perfect pedagogical tool for digital composition. Pop culture and technology are historically linked as the dawn of popular culture can be traced to the Industrial Revolution and they are only becoming increasingly intertwined as the lines between media producer and media consumer blur. In a process known as “screen-to-screen” thinking students are likely to choose pop culture texts for digital composition assignments regardless of whether they are explicitly instructed to do so. Students are already engaging digitally with pop culture outside of school through social media and forum so this process can be transferred to the classroom with ease. Furthermore, students are more likely to enthusiastically participate in learning when it involves texts they find interesting and accessible. I have crafted a curriculum that I am currently teaching to my English 101 class. During my Symposium presentation I will present my research an overview of my curriculum and my findings from my experiences teaching it.

College: CALE

10:00am – 10:20am  O  The American Flag and how it Biases our Judgements, Location: Senior Hall, Room 304
Presenters: Acea Sands
Faculty Mentors: Amani El-Alayli
According to Carter Ferguson and Hasin (2011) brief exposure to the American flag can lead to a shift towards Republican beliefs, attitudes and voting behavior. To expound upon this idea we hypothesized that individuals pictured with an American flag on their Facebook profile would be perceived as more politically conservative and having a more conservative stance on political issues. In our initial study participants were given a fictitious Facebook profile of a young man that either did or did not display the American Flag. Afterwards they were asked to rate the young man on various traits/attitudes. We confirmed that a person with the American flag on their Facebook profile was seen as more conservative, intolerant, disagreeable, and prejudiced. We believe this stemmed from current stereotypes regarding conservatives given the current administration. We are conducting a follow-up that manipulates the person’s political stance by stating in their profile that they are Conservative or Liberal. This will allow us to determine whether the presence of the American flag would have the same effect even if the person’s political stance is clearly described as liberal. Data collection is currently underway. The study of the effects of the American Flag on our perceptions of individuals opens the door to a more comprehensive understanding of the factors that may bias our judgments of others.

College: CSS

10:20am – 10:40am  O  Agitators of Tlatelolco, Location: Senior Hall, Room 204
Presenters: Gregory Smith
Faculty Mentors: Joseph Lenti
The year was 1968 and the eyes of the world were soon to be on Mexico City. On October 12, 1968 the Summer Olympic Games would begin in Mexico City. Mexico had experienced high economic growth since 1940 but with the economic success came public dissent among the Mexican students. The students were concerned about democratization, anti-corruption, and university autonomy. Legitimate student protests turned violent and chaotic in the months leading up to the Games. Communist agitators within the New Left movement in Mexico helped incite violence between student protesters and the military.

The pinnacle of the protests occurred on October 2, 1968 at The Plaza of the Three Cultures at Tlatelolco Square. It was here that 5,000 protesters were brutally repressed by Mexican soldiers and military snipers. It is believed that as many as 325 people were massacred by the Mexican military. Details of the violent clash had been classified for more than 30 years until after the Mexican presidential election of 2000 ended 71 years of one-party presidential rule.

The research is based largely on a collection of primary source documents from the U.S. Department of State, Central Intelligence Agency, and the White House. Consulting recently declassified documents this essay seeks to demonstrate that the governments of the U.S. and Mexico blamed Communist agitators for the violence. The documents reveal ways in which members of the Mexican Communist Party infiltrated the student movement with the intent to incite violence in the events leading up to and including the Tlatelolco Massacre.

College: CSS
Digital technology has changed the face of filmmaking across every platform. In particular, the most significant change the digital era has brought with regards to what we see onscreen as part of the story is the presence of Computer Generated Images (CGI) and computer animation. In light of this, how has the digital shift changed the kinds of stories we tell or the way we go about telling them? Animation has been around since the earliest days of cinema and has continued to delight audiences today. What I am wondering is, has the art of animated moviemaking changed in similar ways as 'live-action' or non-animated filmmaking, not just in what we see onscreen being CGI, but in what digital technology has allowed in terms of the stories that are told and the directorial choices that can be made in the way those stories are presented? Much of this research focuses on Disney animated features of the 1980s and 90s, when computer animation technology was first being incorporated and experimented on and utilizes the ideas of various theorists as we examine scenes within movies that use CGI to to great effect, perhaps even bringing the audience on the verge of the sublime.

College: CALE

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When it came down to the day of the first service project, it went better than what I had thought. We were able to come up with what we wanted to make for the students and how we were going to go about presenting it to them. The first recipe that we were going to make for them was salsa. At first, we were uncertain how the kids were going to take it. We had thought that they were not going to like the salsa, but boy were we wrong! When we got to Betz elementary school, we were all nervous, excited, and anxious. I had no idea what to expect, just hoped that the students would be nice and kind, not rude and obnoxious. As we entered the elementary school, both our team and the students were intrigued with one another. There were a lot of students and not nearly enough of us, but once they split them into two groups, it was a better ratio. When the students were settled down, we were able to start our lesson demonstration. We began by reading them a book about salsa and then proceeded to have them do an activity and, lastly, we demonstrated how to make salsa. The students were so eager to see what we were going to make for them. We were all surprised to see that they loved the salsa, they kept asking for more salsa and chips. This was the same scenario for both groups. The salsa was a success with the elementary students; seeing the students be so happy about something as simple as salsa and chips made me take another look at my happiness.

As we continued attending Betz elementary school, the students gradually began getting more comfortable with us and they were excited to see us when we would arrive. Some things I took away from doing this service project was being able to engage with students while maintaining a composed state of self. Seeing them be so carefree and with so much joy in their eyes brighten my spirits, and at the same time, it scared me because life has a way of disrupting that light within us as we grow older.

College: CSS

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In American culture, we see a large miss and underrepresentation of Latinos particularly in politics. As of 2016, the Latino population in the United States has reached approximately 58 million according to the Pew Research Center. This study looks at insight into why we see such a small number of this ethnicity in this field that could be so powerful over American policy. In this study, I reviewed the reasons and history behind the suppression of Latina/o’s to get an insight as to why we see such a minority in political leadership. In addition, this paper looks at how education can be used in aiding participation and vocalization for voting and gaining rights for this population. Voting blockades have been in place to prevent minority populations from voting. All of these factors have lead to the political struggle of Latinos. This information may be important to the future of American politics and what Latina/o’s in power will do to influence the American political system. The small percentage of Latino’s in political roles is concerning to the LatinX population.

Keywords: Underrepresentation, Participation, party affiliation

College: CSS
10:20am – 10:40am  O  Latinos: Breaking The Barrier of College Completion, Location: Senior Hall, Room 302  
Presenters: Wendolyn Martinez  
Faculty Mentors: Martín Meráz Garcia  
After being met with disadvantage for years Latinos have begun to break away from stereotypes and reaching new highs in college enrollment as the group experiences reduced high school drop out rates. Despite the higher rate of Latino college enrollment low completion rates of bachelor’s and associate degree programs persist. The goal of this project is to identify the barriers Latinos experience while attending higher education prompting them to drop out and suggest solutions to these problems. Through the analysis of data from scholarly sources conclusions are drawn on the reasons Latinos have such a low college completion rate and solutions are offered on how to improve the retention and graduation rates of this population.

College: CSS

10:20am – 10:40am  O  Sentiment Analysis with Naive Bayes and Neural Network, Location: Senior Hall, Room 201  
Presenters: Neil Brommer, Athena Mason, Megan Ostby  
Faculty Mentors: Dan Li  
We attempted to analyze the sentiment displayed in a collection of movie reviews using three different approaches. Our initial approach was less successful than the subsequent attempts with an accuracy no higher than 32% on a 0-4 rating system and 64% on a binary system. Later attempts proved more fruitful. The Naïve Bayes model achieved an average accuracy of 36% for the numerical classification and up to 74% for the positive/negative classification. The neural network results proved similar with 39% and 77% accuracy for the respective rating systems.

College: CSTEM

Presenters: Noah Brown  
Faculty Mentors: Ryan Simmons

10:20am – 10:40am  O  Water Nutrient Conditions Responsible for Affecting the Development and Fecundity of Disease Vectors Responsible for West Nile Virus, Location: Senior Hall, Room 101  
Presenters: Dane Anderson, Sydnee Henry, David Nguyen  
Faculty Mentors: Krisztian Magori  
Mosquitoes are the most dangerous vectors due to their ability to transmit diseases such as malaria, dengue, and Zika virus. In the United States, the most common mosquito-transmitted pathogen is West Nile virus. Mosquitoes in the Culex genus are responsible for transmitting this virus from infected wildlife to people. Therefore, understanding determinants of mosquito abundance is key for managing West Nile disease risks. Mosquitoes lay their eggs in stagnant water where larvae can feed on bacteria before pupation and emergence as adults. The relationship between water nutrient conditions and overall mosquito fitness (from larva to adult) is not well understood. Our objective will be to look for relationships between varying water nutrient levels (PO3 and NO3) and their effects on Culex growth and development in a controlled setting. The results of this study will potentially help mosquito control programs in eliminating specific breeding sites and protect urban communities from mosquito-borne diseases.

College: CSTEM

10:40am – 11:00am  O  EWU Phishing Example, Location: Senior Hall, Room 201  
Presenters: Lisa Faulkner  
Faculty Mentors: Carol Taylor  
The purpose of this project is to show how a scammer could obtain student usernames and passwords. The attacker sends a student an email message informing the student there is a career event and they need to reserve a spot using Handshake. The attacker has a hyperlink leading the victim to a fake version of the sign in page to Handshake. The fake version is connected to a database which records the information. This project was not sent out to students to test the functionality of the scam. This project is only an example of a potential scam.

The project consists of a fake email, a fake version of Handshake, and a fake version of the EWU login page. The fake version of Handshake and fake version of the EWU login page is located at http://studentweb.ewu.edu/lfaulkner/symposium_project/

College: CSTEM
Gay Rights and Catholicism in Mexico, Location: Senior Hall, Room 204

Presenters: Logan Schoesler
Faculty Mentors: Joseph Lenti

In this essay I examine how the gay rights movements and gay rights legislation and Catholicism interact in Mexico from the time of French occupation in the 1860s to the present day. The Catholic Church has always had a strong following in Mexico and the fact that Mexico City has one on the most vibrant gay community’s in the world has caused some conflict within in the country. Others have explored how the Catholic Church has lost some of its followers in Latin America due to the fact that it is resistant to changing doctrine to become more modern or progressive citing topics like poverty and the slow decline of traditional family values as well as marriage equality as potential reasons. I relied mostly primary sources to argue that Mexico’s progressive legislation regarding gay rights has caused the Church to modify its stances and move in a more liberal direction. I argue that despite the Catholic Churches views on homosexuality Mexico has been more supportive of the LGBTQ+ community and has helped in making the Catholic Church move its views on homosexuality to be more liberal than the previous church doctrine.

Keywords: Gay Rights, Mexico, Catholic Church

College: CALE

Latinos in the United States Military: World War II, Location: Senior Hall, Room 304

Presenters: Brianna Lasso
Faculty Mentors: Martín Meráz Garcia

The reason for writing this research paper is to inform the audience and present them with a new understanding of Latinos in the United States military during World War II. This research project brings to light the positive and negative experiences for Latinos who served their country during this period in history. It also recognizes the achievements and heroic acts of several Latinos during World War II and explores the various roles that they played and contributions that they made for the war effort. The method of research used for this study primarily consists of scholarly journals, books, and documentaries. The research presented in this paper will give better insight into the lives of Latinos as they served in the United States military during the Second World War. It will shine a light on the struggles that Latinos faced and it will give the reader a new perspective of who Latinos are and what they have done for America.

Keywords: military, Latinos, history, Hispanics, World War II

College: CSS

Maintaining the Narrative Through Social Media: A Case Study of Seattle Seahawks Quarterback Russell Wilson, Location: Senior Hall, Room 203

Presenters: John Collett
Faculty Mentors: Patricia Chantrill, Chadron Hazelbaker

This research study is a thesis in completion of the Master of Science in Communication program. The research incorporates a mixed methods approach for a case study focusing on the Instagram account of Russell Wilson during the calendar year of 2017. A quantitative approach of content analysis is incorporated to analyze what Wilson is posting about and how it fits into themes of previous research studies on social media and media framing. A qualitative approach of rhetorical criticism and textual analysis are used to analyze specific video postings on Wilson’s Instagram account for how they reinforce his personal narrative. Some of the initial findings point to how endorsements and advertisements are a consistent theme appearing on Wilson’s Instagram. These advertisements reinforce the media narrative of Wilson being a dedicated athlete, family driven, and an all-around good man. The goal of the research is to provide further evidence of how athletes are controlling the narrative and framing of themselves through social media and are increasingly less reliant on traditional media.

College: CSS
I will be discussing societal expectations of women in Regency England and how they are reflected in Jane Austen’s novel Pride and Prejudice. I will be arguing that through the character of Lizzy Bennett Austen is suggesting that women could attain a happy marriage even if they completely rejected those standards. I compared Lizzy’s actions throughout the novel to the expectations presented in a courtesy book published in 1811. The courtesy book presented specific examples of ‘acceptable’ behavior that would help women attain a husband and suggested that this was the only goal for women in this time. Although Lizzy defied such conventions she was still successful in her marriage to Mr. Darcy. For many Lizzy is a favorite character because of the clever ways that she works within the social constraints placed upon her. My presentation will celebrate the manner in which she carefully maneuvers through the system and manages to retain what is important to her without being ostracized by her friends and family.

College: CALE

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**Supplemental Iron Impacts the Antibacterial Effects of Manuka Honey, Location: Senior Hall, Room 101**

*Presenters: Laurisa Ankley*

*Faculty Mentors: Andrea Castillo, Robin O’Quinn*

Pathogenic bacteria have developed resistance to every antibiotic currently available motivating scientists and medical professionals to find effective alternative treatments. Manuka honey has captured the attention of researchers due to its long history of effective medical use as an antibacterial. The exact mechanisms used by Manuka honey to kill bacteria and prevent resistance remain incomplete. Bacteria require iron for many processes without it they are unable to survive. One hypothesis is that Manuka honey may interfere with iron acquisition; we test this hypothesis by determining if supplemental iron offsets the antibacterial action of Manuka honey. The minimum inhibitory concentrations for Escherichia coli and Staphylococcus aureus were 6% (n=16) and 3% (n=16) Manuka honey respectively. When E. coli cultured with 6% Manuka honey was supplemented with ferrous sulfate (75-500µM) we observed growth that was significantly greater (p < 0.05) than the E. coli plus 6% Manuka honey alone. However, supplementation of S. aureus plus 3% Manuka honey with ferrous sulfate (25-400µM) did not restore growth over the no iron control. Instead, three of our iron treatments 75-200 and 500 µM resulted in significantly less growth (p < 0.05).

College: CSTEM

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**The Education Gap Among Latino/a Students, Location: Senior Hall, Room 302**

*Presenters: Zachary Berkshire*

*Faculty Mentors: Martin Meráz Garcia*

The focus of this research paper is on the education gap of Latino/a students between the ages of 16 and 24 compared to Whites. According to an article from the U.S Department of Education about 82% of Latino/as graduated with a diploma or received a GED from high school compared to the 92% of the White demographic. While the high school graduation rates among Latinos has improved significantly over the last fifteen years there is still needs to be more done to close the achievement gap. Preliminary research suggests that poverty rates among Latino/a families effects the quality education they receive and whether or not a successful transition into a college or university occurs. This study relies on scholarly sources as the method of analysis to draw the conclusion regarding the relationship between poverty rates and educational achievement of Latino students.

Keywords: Education Poverty Latino/a Achievement gap

College: CSS
The Importance of the State Department and the United States Foreign Service, Location: Senior Hall Room 124

Presenters: Bryan Lockwald
Faculty Mentors: Dorothy Zeisler-Vralsted

This paper addresses the marginalization and purposeful diminishment of the United States’ ability to project diplomatic influence and power outside its borders through the Department of State. Further this paper points out that United States diplomatic capability and activity is increasingly being handled by the military branch. It is important to understand that the ability to project diplomacy and military force are both necessary and not mutually exclusive. In understanding these recent developments this paper analyzes the mission statements and funding levels of the Department of State and the Department of Defense. In addition, the history of the diminishment of the Department of State and its diplomatic capacity starting in the early 1990’s with a marked acceleration of this diminishment under the current president will be reviewed. Based on this research the author concludes that our allies and adversaries alike will interpret the hollowing of our diplomatic capacity, and replacing that capacity with military capability, as a message that the United States is not seeking peace and diplomacy in international relations but aggressive hegemony and use of military force as the primary means of influence. Finally, the author suggests changes in United States worldwide engagement in security and diplomacy, which usually go and in hand, by extending our diplomatic reach along with low key long term Special Operations engagements, saving our main military forces for large scale homeland protection or large-scale support to our allies. Changes in funding and recruiting for the Department of State in order to bring these agencies into better parity is also recommended.

College: CSS

The Positive Impact that Having Representation In Literature Creates, Location: Senior Hall, Room 306

Presenters: Maria Rivera Diaz
Faculty Mentors: Norma Cardenas

Growing up in The United States of America minorities do not have the representation that is need in children literature. Today the nation known as the melting pot of the world is lacking in diversity within the public media. This affects every single generation due to the fact that seeing the cultural and background that children are living and encounter on a daily basis is critical to development. There is a disconnect that children are feeling as they are growing up witnessing that there is something missing from them within literature. The purpose of this reassurance is to examine if there is a particular reason for why minorities are being ignored within children literature and the affects that having diverse children literature has on students. In addition, I have collected data and analyzed information based of improvement of literature scores in public school alongside individuals interview and personal experience. There isn’t enough studies and this will be added critical information that is needed to help diversity.

Keywords: Children’s Literature, Representation and Minorities.

College: CSS

Bilingual Programs and their Cognitive Effect, Location: Senior Hall, Room 302

Presenters: Alejandro Lopez
Faculty Mentors: Martín Meráz Garcia

Multiple sources indicate early literacy skills were higher among children enrolled in bilingual classrooms than for children in non-bilingual classrooms. The early stages of life are our most malleable state and the experiences we have help us develop who we are. Often the decisions parents make will have a significant impact on their children’s cognitive development. Parents often are given the option to allow their children to enroll in a bilingual program but they were also given the option to opt out and be placed in English only classes. The data is divided with half of parents wanting their children to take part in bilingual programs to retain their native language and express their culture in a classroom setting and the other half opting out. This work utilizes scholarly articles to pinpoint the effects of bilingual programs on Latino students vs. those who have been placed in a regular English only environment.

College: CSTEM
Comparative Analysis of Chol@ Culture Appropriation Infiltrating subcultures in Asian Communities That Are Predominantly Anti-brown, Location: Senior Hall, Room 306

**Presenters:** Sarahi Gutierrez  
**Faculty Mentors:** Norma Cardenas

Over the years American media has lacked the representation of Latino/a culture and showcased this outdated view to various parts of the world with the aid of globalization. The main focus is centered around Asian countries who’ve adapted the cholo/a practices within their subcultures because of exposure from imported magazines, youtube and social media. These Asian countries acculturate the cholo/a culture integrating lowriders, attire and music into their lives to promote the Chicano culture without the consequences of their actions. They culturally appropriate the Chicano style for their own gain but don’t understand the struggle many Latinos/as faced during the movement that create these cholo/a groups. There reminds few who appreciate the culture; the majority however diminish the power of brown folk’s impact on history and don’t receive accountability for continuing to oppress the brown folk in their own communities. The intersectionality of this issue lies within deep rooted xenophobia, sexism and colorism that predominantly shapes these Asian subcultures to attach themselves to an identity that opposes those norms without self-reflecting their own culture.

**Keywords:** acculturation, cultural appropriation, anti-brown, chola

**College:** CSS

Creating Immediacy in Online Classes, Location: Senior Hall, Room 124

**Presenters:** Sherie Lynn Betances-Vela  
**Faculty Mentors:** Galina Sinekopova

Since the beginning distance learning has continued to grow at momentous rates. The increase of this new type of student learning has produced an increase in a competitive market among large and small colleges and universities. The traditional face-to-face classroom structure is being impacted by the new online learning. As a result universities and colleges everywhere are making available a diversity of degrees to students nationally and internationally twenty-four hours a day seven days a week. As a result more than ever instructors need guidance on how to effectively use technology and how to close the psychological gap between them and the students. This presentation has four goals: first to research and clarify the important role immediacy plays in online education; second examine the diverse strategies of creating immediacy through synchronous communication and technology; third consider the impact of educator influence; fourth address the following hypothesis: the key to achieving a desirable online class immediacy is to close the psychological gap between educators and students through synchronous communication.

**College:** CSS

Latinos in Public Education, Location: Senior Hall, Room 304

**Presenters:** Chelsea Colvin  
**Faculty Mentors:** Martín Meráz Garcia

This research explores the idea of an inverse relationship in larger school districts in which as the percentage of Latinos increases the academic performance of the school decreases. My hypothesis for this research is that larger poorer school districts are often surrounded by families with lower family incomes which contribute less resources leading to less qualified personnel and higher students to teacher ratio. This study looks at the number of Latinx students attending Virgie Robinson Elementary and White Bluff Elementary the programs these schools provide for students such as English language learner and their state test scores. The motivation for pursuing this work is based on preliminary research which include peer review journals and scholarly sources that students attending wealthier school districts with low levels of Latinx students tend to do better academically than students attending poorer school districts with a higher percentage of Latinx students. Evidence suggests that large Latinx populated schools perform poorly in their academics and standardize tests because students are barely learning English and come from a home where Spanish is the primary language. Finally my research assesses to what extent the school one attends effects the education one will get.

**College:** CSTEM
O Orientalism and the UN: Deconstructing the Double Standard in Policies of FGM/C, Location: Senior Hall, Room 204

Presenters: Casey Ball
Faculty Mentors: Majid Sharifi

Female genital mutilation, cutting or circumcision (FGM/C) involves removing or altering the female genitalia. The UN’s Zero Tolerance Policy toward FGM disregards the cultural application of these practices and implements educational programs, while criminally prosecuting those participating in the performance of FGM/C. The UN and associated organizations reference female genital mutilation (FGM), although to maintain objectivity across genital practices, FGM/C will be used in this paper. This paper proposes that the double standard between Western-classified cultures and cultures traditionally practicing FGM/C exists as the international regime of human rights, created by the cultural hegemony, imposes a juxtaposition of acceptable and illegal practices of FGM/C. This is exhibited through Western FGM/C practices, other acceptable body alterations, male genital circumcision, and the intentionally abrasive language used to discredit the legitimacy of important and chosen cultural practices.

College: CSS

O Rainbow Trout (Oncorhynchus mykiss) Habitat Utilization in Lake SpokaneWashington, Location: Senior Hall, Room 101

Presenters: Shawna Warehime
Faculty Mentors: Paul Spruell

Dams influence water quality and available habitat leading to changes in conditions such as water residence time and habitat types for native fish species. The construction of Long Lake Dam in 1915 created the Lake Spokane Reservoir on the Spokane River downstream of SpokaneWA. The reservoir now experiences stratificationwarmer temperaturesincreases in nutrient loadingand low dissolved oxygen. My objective is to determine summer habitat utilization by triploid rainbow trout (Oncorhynchus mykiss) in relation to temperature and dissolved O2 (DO). During year one of this two year study I inserted internal acoustic transmitters into 20 rainbow trout. These transmitters contain sensors for temperature and depth. They were released into Lake Spokane and tracked weekly (6/1-11/6) until locationtemperatureand depth were pinpointed. Additional temperature and DO data of the reservoir were provided by Avista. These data will be used to determine how fish movement and selection is influenced by water quality. Habitat where fish were located will be compared to habitat where they were absent to determine if there is a significant difference in selection. Preliminary data resulted in 19 of the 20 fish being locatedfive mortalities over the seasonand 14 actively moving in the reservoir. The rainbow trout made individual long distance movements throughout the reservoir during the summer period with surprising temperature selections and variable depths (14-23.6 °C & 0-16 m respectively). Howeverlate summer to early fall showed schooling within 3 m of the surface at 20.4 °Cand staying at these depths until the last tracking event in early November. An additional 25 individuals will be tagged in 2018 to increase sample size and investigate annual variation in habitat selection.

College: CSTEM

O Rampant Privilege: Sylvia Plath’s Appropriation of Jewish Culture, Location: Senior Hall, Room 221

Presenters: Mels Felton
Faculty Mentors: Chris Valeo

Sylvia Plath is often remembered as one of the most prominent voices in feminist writing. Through her novel“The Bell Jar”and her many poemsPlath has become an icon within feminist circles. Howeverthis fame often hides Plath’s use of cultural appropriation within her poetryspecifically her use of Jewish diaspora and cultural trauma. In the pastappropriation of cultures by white women has been excused or simply ignoredbut with an increase of advocacythese uses of appropriation have begun to be more critically examined. It is within this critical lens that Plath’s poems “Lady Lazarus” and “Daddy” will be examined. The effects of this use of cultural appropriation will be explored by asking the question: Why is cultural appropriation used and how does it harm the advancement of minority groups?

College: CALE
Structural Analysis of the Stillwater Complex, Montana

**Location:** Senior Hall, Room 201

**Presenters:** Christa Loucks

**Faculty Mentors:** Chad Pritchard

The Stillwater Complex, Montana has been mined and studied for years because of significant concentrations of chromium and platinum-group elements (PGE). The complex is a Neoarchean layered-mafic-to-ultramafic intrusion with an especially PGE-enriched zone called the J-M Reef. The surrounding rocks are Achaean to Cretaceous and have undergone multiple periods of deformation and metamorphism. The main structures focused on in this project are thrust faults and associated folds that offset the J-M Reef. This project will use a US Geological Survey database of ~4,000 strike and dip (orientation) measurements to reclassify the structural domains specifically those created by Page (1977). Using these data and the work of Thacker et al. (2017) this project will estimate the interactions of the rock layers at depth to better understand how a series of tectonic events have deformed this unique and economically important area over the past 3.14 billion years.

**College:** CSTEM

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Dropout Rate Among Chicano and Latino Immigrant High School Students

**Location:** Senior Hall, Room 302

**Presenters:** Emma Smith

**Faculty Mentors:** Martín Meráz Garcia

This paper will discuss the dropout rate among Chicano immigrant high school students in the U.S. This study will exhibit a much higher percentage of Latinx dropouts compared to any other ethnic group in America from 2000 to 2015. There will be specific factors identified as to why this is true among them language barriers, the age at which they first immigrated and prior schooling. Additionally this work explores what can be done to reduce the dropout rates. With the help of scholarly articles, reviews and data analysis, this paper will demonstrate the problems that foreign born Latinx and Chicano students face in the educational system and propose solutions to increase the graduation rate.

**College:** CSS

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Vocalizations Influence Roost-Site Selection in Overwintering Cavity-Nesting Birds in Eastern Washington

**Location:** Senior Hall, Room 101

**Presenters:** Shelby Hunter

**Faculty Mentors:** Margaret O'Connell

Primary cavity-nesting birds (CNB) are keystone species because the tree cavities they excavate annually become critical habitat for other species. Most CNB are year-round residents and increase their overwinter survival by night roosting in cavities and forming flocks. Birds in flocks use alarm calls (AC) to warn of threats and contact calls (CC) to promote group cohesion. My study asked if vocalizations influence the frequency and number of CNB inspecting roosting sites and if number varies with temperature. The study was conducted during the winters of 2016-17 and 2017-18 on Turnbull National Wildlife Refuge. Roost boxes were located at 36 stations between 3 forest units. At each station I conduct an 8-minute point count (PC) prior to sunset. Following the initial PC I conducted a second PC with 1 of 3 broadcast treatments: 1) no call 2) AC and 3) CC. We compared frequency of species’ presence and number of birds between treatments with a Fisher’s exact test and a two-way ANOVA respectively. I recorded 516 observations of 8 species during 2016-17 and 730 observations of 9 species during 2017-18. Pygmy nuthatches (both years) and chickadees (2016-17) responded positively to CC chickadees responded positively to AC in both years.

**College:** CSTEM

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Wake of Thought - Explained

**Location:** Senior Hall, Room 203

**Presenters:** Maya Jones

**Faculty Mentors:** Jonathan Middleton

The goal of this project was to create a composition based on gaze tracking from an image. The process involved generating gaze tracking coordinates with conversion to music. For the gaze tracking phase I used freeware developed by Oleg Špakov that tracks eye motion when shown a random image. Then in the conversion phase I data of the locations and durations of the tracked gaze are paired with pitches and note durations. I worked with only five pitches generated from the image and wrote a narrative to bring words to the project. From the narrative came a poem that was then used as lyrics for a choral composition. This process is innovative in that by recording my perspective of an image I was able to shape a musical composition using multiple sources of information gathered from that image.

**College:** CALE
11:20am – 11:40am 〇 Was Jane Austen a Proto-Feminist?, Location: Senior Hall, Room 204  
**Presenters:** Kara Monroe  
**Faculty Mentors:** Beth Torgerson  
Through her writing, Jane Austen inhabits beliefs of feminism by showing accurate and timely depictions of marriage in society and poking fun at their ridiculousness. In this presentation, we will look at the definition of Proto-Feminism, Mary Wollstonecraft's possible influence on Austen's writing, and the idea of womanhood.  
**College:** CALE

11:40am – 12:00pm 〇 Living Art, Location: Senior Hall, Room 203  
**Presenters:** Cailyn Knudtsen  
**Faculty Mentors:** Kevin Decker, Catherine Girard  
Performance art or "life art" has been stereotyped by extremism and often brings up images and associations of masochism, radical feminism, and desperation for "the new-Dadaists to get more attention for their obsessions," as art critics have claimed. Through examining Meiling Cheng's studies in The Other Los Angeleses: Multicentric Performance Art, as well as considering my own personal change in mindset after exposure to performance art, I asked myself, has performance art shifted the way that we as the audience experience values of beauty in life? If so, how has it affected the ways in which the audience continues to experience beauty in life and what we perceive as beautiful? To find answers to these questions, I first examined the qualities that make up a performance artwork including media and the relationship between performer and audience. I then analyzed the dynamics in Hans-Georg Gadamer's "game analogy" of an artwork in his philosophical work, Truth and Method, and followed it by investigating the experience of emotions within a performance. Finally, I found my conclusion based upon values of beauty and their correspondences to emotional experiences during performance art.  
**College:** CALE

1:50pm – 2:10pm 〇 Effects of American Flag Presentation with Facebook Profile Pictures on First Impressions, Location: Senior Hall, Room 101  
**Presenters:** Dana Billena, Jackie Ross  
**Faculty Mentors:** Amani El-Alayli  
Previous research showed that brief exposure to the American flag led to a shift toward Republican beliefs, attitudes, and voting behavior (Carter Ferguson & Hasin 2011). In an initial study conducted in our lab last year, we found that when a man was presented with an American flag, he was viewed as more politically conservative and as possessing some traits, attitudes, and behaviors associated with negative stereotypes about conservatives (e.g., intolerance, prejudice). The current study examined whether this effect of the American flag replicates when the target person is a woman. It also has the additional condition of a Confederate flag for comparison purposes. We hypothesized that someone presented with the Confederate flag would be perceived as the most politically conservative and as having more traits associated with negative stereotypes of conservatives as compared to the target person in the other conditions (American flag or control conditions). Participants viewed a fictitious Facebook profile consisting of a photograph of a young white woman with a background photo containing either the confederate flag or the American flag or no flag overlay. Participants rated her on traits pertaining to political affiliation, tolerance, nationalism, dominance, disagreeableness, and prejudice. We are currently collecting data and will analyze whether the flag influences perceptions of conservatism, which subsequently may influence perceptions of those traits. We expect to have a sample size of 100 participants. Due to the current political climate with increased public debate surrounding political parties and nationalism, it is important to understand how our perceptions of others may be influenced by how they present themselves. Specifically, it is important to know whether those who fly the American flag are seen negatively when the flag is supposed to be a positive symbol for our country.  
**College:** CSS
1:50pm – 2:10pm

**Gender Fluidity Among the Spokane Phoenix Women’s Rugby Team, Location: Senior Hall, Room 203**

*Presenters: Fiona Lahmeyer*

*Faculty Mentors: Kassahun Kabede*

The purpose of this research paper is to illuminate the relationship between gender identity and gender performance within the Spokane Phoenix Women’s Rugby Team. Traditional gender studies are often concerned with exploring the dichotomy between the ‘male’ gender and the ‘female’ gender. However, recent anthropological research challenges the notion of fixed genders. This paper details gender fluidity term that represents the fluctuating gender roles enacted by the Spokane Phoenix team that challenge traditional concepts of men and women’s identities as distinct and opposing. This paper further argues that gender behavior is determined by a person’s immediate environment by drawing upon evidence of interactions and relationships among the Spokane Phoenix women’s rugby team during their playing season and off season.

*Keywords: Anthropology* Gender Rugby

**College: CSS**

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1:50pm – 2:10pm

**How does the Added Stress of Competing as a Student Athlete Affect Psychological Well-Being and Nutritional Health?, Location: Senior Hall, Room 124**

*Presenters: Jayme Schaefer, Sarah Gaston, Cassidy Schreiber, Destinee Thomas*

*Faculty Mentors: John Gerber*

There is much research regarding the heightened stress levels of traditional students in high school and in collegiate settings (Kaiseler 2017). Further research has also been conducted to identify how sports participation has increased this stress load (Dubuc-Charbonneau 2015). Our study will look to compare these known stress levels with perceived psychological well-being and overall nutritional health and knowledge. There is research which currently suggests that performing a dual role as both an athlete and a student results in an increase of physical and psychological demand and that these stresses could possibly negatively affect both their health and their life satisfaction (Surujlal 2013). Our study aims to bridge current research and hopes to find a correlation between physical and psychological demands while identifying side effects on their nutritional habits. Student athletes are expected to cope with their studies and simultaneously participate in sports while satisfying the expectations of coaches, teammates, friends, and family (Surujlal 2013). Our study expects to be able to compare these stressors and coping mechanisms between the high school and collegiate setting to conclude how they evolve.

**College: CALE**

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1:50pm – 2:10pm

**Latinos in the World of Baseball, Location: Senior Hall, Room 302**

*Presenters: Trent Buchanan*

*Faculty Mentors: Martín Meráz García*

In the United States of Americasports have always been a major aspect to life and entertainment. The great thing about sports is that is doesn't matter what age, gender, race, ethnicity or kind of person you are anybody can play sports. The issue that we still face in today's society is not the one of “can anybody play sports?” but rather the question of “can anybody make a living off of playing sports?” Baseball is America's past time and was the sport in which Jackie Robinson broke the color barrier. The issue today though is that Latino athletes specially in baseball are not receiving equal opportunity. Team owners can essentially pay these prospects fractions of salaries they would be receiving had they been born in the United States (Latinos in Baseball 2003). There is lots of research out there that states that Latino athletes coming to America to play professional baseball are not receiving fair treatment compared to an American ball player. This paper will go deeper into the social and economical aspects of how and why Latino baseball players do not receive equal opportunity in the sport or even in the media to speak about the problems that they face every single day because of their ethnicity and their background.

**College: CSS**

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In this paper I will be discussing how Hispanic children are affected by their parents documented status deportation and how it can affect them physically and mentally. Studies have shown that children who live in a household where at least one of their parents is undocumented don't do well in school and are even less likely to graduate from high school (Luis H. Zayas, Lauren E. Gulbas, 2017). These children don't feel secure because of raids that occur and laws that are passed that make it really hard for undocumented people to have a stable life which also affects them economically putting them in poverty (Sandy P. Rubio-Hernandez, Cecilia Ayon, 2016). This paper highlights the impact anti-immigration policies have on Latina/o's children. Drawing on peer review journal articles and scholarly sources this paper points to the trauma experienced by Latina/o children whose parents or legal guardians have been deported and what schools and communities where deportations have taken place can do to diminish the negative impact of these anti-immigration actions.  

**Keywords:** Social emotional effects, Parental Documentation status, Mixed-status families, mental health issues

**College:** CSS

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This research is focused on Edgar Allan Poe's short story, “The Masque of the Red Death.” While Edgar Allan Poe has written stories that are frequently canonized as satire, “The Masque of the Red Death” is ordinarily not included among those titles. Previous research on this text has focused on the odd narration throughout the story and it has typically been viewed as another one of Poe’s gothic stories. However, my research explores and provides evidence that “The Masque of the Red Death” is in fact a satire that mocks the desire to escape death. This work will resituate this story as a site of macabre confluence between Poe’s interests in horror and humor.

**College:** CALE

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The Spratly Islands are located in the South China Sea which is rich in resources, marine life, and shipborne trade; yet the area is experiencing regional conflict and advancing into a larger international conflict or war. Ownership of the Spratly Islands has been disputed for decades over the possibility that the Spratly Islands are expected to contain as much as one hundred and five billion barrels in oil and natural gas. The situation is exacerbated by China’s multiple artificial island building projects which are situated on top of what were once living reef structures. These artificial islands are seen to be highly militarized and hold no peaceful purpose. If China does use these islands for military action the United States would enter the dispute as a mediator or worse a bodyguard for its allies’ fragile positions. If actions are misinterpreted a naval war may arise that could bring devastation to American forces while damaging the Chinese war machine. This paper investigates the socio-political-military aspects of the dispute to find a solution through the possibility of an IGO Peacekeeping force.

**College:** CSS

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In academiasome students may view male and female professors differently based on how they think men and women should behave. Based on the stereotype content model male and female are evaluated differently; men are expected to be more agentic and competent whereas women are expected to be warmer and more nurturing. The role of a professor is to oversee a classroom and the traits that professors should express line up more with agentic traits; however students may have a different expectation of their female professors. The purpose of this study was to see if a fictitious female professor would be viewed as having more communal qualities (compared to an identical fictitious male professor) and if students would set higher standards for her having communal qualities. We hypothesized that this in turn could result in students reporting being more likely to interact with the female professor and seek more help from the female professor and have higher expectations of specific types of communal behavior (e.g., extra help/lenience) from the female professor. Thus far we have gathered data from roughly 170 students and will be including our results for this presentation. This research has implications for how much personal responsibility that students may take in their success.

**College:** CSS
How to Radically Simplify Reality: Contradictions of Classical and Behavioral Economics, Location: Senior Hall, Room 243

Presenters: Parker Burchett
Faculty Mentors: Dana Elder

A specter is haunting economics - the specter of Behavioral Economics. Two different schools, Classical and Behavioral, assume radically different things about human behavior. Classical assumes actors are rational while Behavioral shows where they are not.

This a problem since both schools are useful within different domains. Both schools are simplifications and attempts to deal with the unmanageable complexity of reality. This unmanageable complexity is a product of the Frame Problem. I apply Jordan Peterson’s model of simplification to this debate.

I will show two things: (1) reality is unmanageably complex and (2) depending on the level of analysis either Behavioral or Classical are more useful.


The audience will gain insight into a contemporary debate within economics and an overview of different theories of simplification.

Loneliness in the Elderly, Location: Senior Hall, Room 203

Presenters: Charles Crook
Faculty Mentors: Kassahun Kebede

Loneliness has been compared to smoking and obesity in terms of its impact on health. Studies have found that there are many negative health impacts one experiences when they are going through chronic loneliness however this is something that can be treated and prevented. Loneliness can occur to any individual in any population but is prevalent in elderly populations. In the Spokane metropolitan area supported living facilities have developed policies within to prevent the development of loneliness in its residents. Their policies promote community involvement inclusion in activities culturally specific activities and personalized individual and/or group activities. In order to see if these policies are effective in preventing loneliness conducted research to see if residents within these facilities are: experiencing loneliness show loneliness is manifesting itself what the effects of loneliness are and what residents believe could be done to deter loneliness. In this study I used participant observation interviews and life histories to help me understand the dynamics of loneliness. The participants under study were male and female aged 60 to 102 years old primarily Caucasian had varying physical and cognitive disabilities. My research showed that despite having the opportunity to be involved within their care communities the elderly regularly did not partake in social events did not like them and still experienced loneliness frequently. Based on the results of this research the paper suggests what should be done minimize loneliness.

Keywords: elderly loneliness health

Roman Fever Fulfilled, Location: Senior Hall, Room 221

Presenters: Amanda Haworth
Faculty Mentors: Max Hohner

Edith Wharton’s “Roman Fever” offers a psychological catharsis in that Mrs. Ansley of the two main characters redeems herself by admitting the deed that ate her up with guilt for so long beginning and now ending in Rome. A similar literary theme can be found in the acclaimed novel The Kite Runner where the redemption can only seem to take place in the location it began. In this novel the main character Amir witnesses something unspeakable and has the chance to make it right but doesn’t. The guilt of this eats him up and Amir can no longer take it until he goes back to the location where the original incident took place only to purge himself of the guilt by allowing himself to be punished by the perpetrator who did his friend wrong. The only way to end the guilt is to purge it in the same place it began. With “Roman Fever,” the conflict began and ended in the Coliseum in Rome. Wharton leads the reader to believe Mrs. Slade is the one being weighed down by guilt based on her personality and thoughts. Wharton does this to produce a façade to which many readers can relate. While Mrs. Ansley initially seems like a composed foil to the insecure Mrs. Slade Wharton reveals Mrs. Ansley’s hidden insecurity – the guilt over her hidden affair with Delphin. The entire story led up to the innocent-looking Mrs. Ansley atoning in the end in a manner similar to the atonement in The Kite Runner.
2:10pm – 2:30pm

Stepping it Up: Light but not Moderate-to-Vigorous Physical Activity is Associated with Grit in College Students, Location: Senior Hall, Room 124
Presenters: Shelby Chriest, Emily Dunston, Amber Skillingstad, Martin Waldrip
Faculty Mentors: Katie Taylor, Annika Vahk

Research has shown physical activity (PA) to be positively correlated with resilience and grit. Further grit has shown to predict academic success in students. PURPOSE: To examine the differences in grit scores across GPA and varying levels of PA. Further to determine the associations among grit-resilience and PA in college students. METHODS: University students volunteered to complete a 15-minute survey regarding grit (GRIT-short), resilience (CDRISC) and PA (IPAQ-short) as well as demographic information such as age, sex, GPA and year in school. Data were analyzed using a one-way ANOVA to determine differences across quartiles of PA and linear regressions to determine associations among grit-resilience and PA. RESULTS: Of the 247 participants (age: 21.1±2.9 years) 67% were female. Grit (p=0.04) was significant across GPA with the lowest (3.3±0.6) and highest (3.7±0.6) GPA with the greatest difference. Grit (p=0.002) but not resilience (p=0.18) was significantly different across quartiles of sitting (q2: 3.8±0.6 vs. q4: 3.3±0.7; p=0.001). Grit was also significantly different across quartiles of MVPA (q1: 3.4±0.7 vs. q3: 3.8±0.6; p=0.026). Time spent sitting was significantly and negatively associated with grit scores (β=-0.17; p=0.01) independent of MVPA but the relationship was slightly attenuated by resilience (R²=0.25). Walking was significantly and positively associated with resilience independent of time spent sitting and MVPA (β=0.14; p=0.04).

College: CALE

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2:10pm – 2:30pm

The Challenges & Motivations of 1st Generation Latina/o Students in Higher Education, Location: Senior Hall, Room 302
Presenters: Ereisa Morales
Faculty Mentors: Martin Meráz Garcia

As of 2014, Latinx have accounted for more than half of the United States population. Additionally, the number of Latinx students in academic institutions is also increasing across the country. Currently, there is limited research on the challenges and motivations that Latinx face in pursuing higher educations specifically what obstacles first generation students face as they pursue undergraduate careers. This work explores what keeps Latinx driven to continue their education despite the challenges experienced which include greater levels of acculturative stress associated with an increase in mental illness. Due to these challenges Latinx may struggle more than their white counterparts. Other factors such as familismo can play an important role in academic resilience and mental health among Latinx students. The aim of this investigation is to understand the aforementioned challenges of first generation Latinx students in higher education experience. Finally, this work will examine the innovative methods (if any) universities are implementing to support the educational success of the Latinx students.

College: CSS

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2:10pm – 2:30pm

The Great Wall of Donald Trump, Location: Senior Hall, Room 304
Presenters: Gabriel Cesar
Faculty Mentors: Martin Meráz Garcia

For as long as we have known, the existence of borders, walls, and boundaries have gone hand in hand with the development of civilizations and the human experience as a whole. With the new Presidential leader of the United States, President Donald Trump has a firm stance on border control. Does building a wall of mass security help justify the actions/beliefs of the president? Looking into the different aspects of the U.S.-Mexico border wars; this study uses scholarly books and peer reviewed sources with some insight coming from media. Immigration is found to be one of the main reasons for having justifiable means with the idea of building a wall to help control issues of illegal immigration. The purpose of this paper is to assess the effectiveness of building a wall in accomplishing the stated objectives.

Keywords: Immigration, Border, Mexico, United States

College: CSS
A Comparative Study of Concussion Knowledge in NCAA Athletes and College Students and High School Students, Location: Senior Hall, Room 124

Presenters: Lindsay Hayes, Keira Lathrop, Lucas Uphaus
Faculty Mentors: John Gerber

In the short-term, concussions can cause cognitive deficits, fatigue, and emotional or personality changes (CDC 2017). Repeated impacts to the head over a long period of time can lead to chronic traumatic encephalopathy or CTE, a dangerous degenerative brain disease (CDC 2017). Proper education to and for athletes is important in the prevention of concussions or any prolonged complications associated with concussions (Gleadhill 2014; Register-Mihalik et al. 2013). We have conducted a survey to determine the comparative knowledge of athletes and college students to non-athletes and college student-athletes participating in an NCAA sport. Analysis of this survey revealed that the three groups being tested did not have a statistically significant difference in scores with the exception of significantly higher scores in the signs and symptoms category for NCAA athletes. We were also made aware that there are small gaps in scores as we have acknowledged that there can be room for improvement for concussion knowledge in all three categories.

College: CALE

False Stereotypes, Location: Senior Hall, Room 302

Presenters: Jordan Everard
Faculty Mentors: Martín Meráz Garcia

Despite the Latinx community being misrepresented in mainstream American media, countless Latinx individuals have accomplished prestigious milestones throughout history in America. The stereotypical notions that have formed over the years towards Latina/o’s are both insulting and undermining. Common traits that these stereotypes follow often include the idea that Latinx people are poor, uneducated, violent, and unsuccessful. My intent is to discuss self and societal impacts of these stereotypes and to nullify these negative stereotypes toward Latinx individuals by identifying positive traits that outstanding Latinx citizens possess along with important positive impacts the Latinx community has made in American society. Through compare and contrast analysis of peer review and scholarly sources logically rational statements are formed to solidify the conclusion stating that Latinx individuals are not what these stereotypes claim.

Keywords: stereotype, equality, contradiction, misrepresentation, Latinx

College: CSS

Latinos Fueling the U.S. Economy, Location: Senior Hall, Room 304

Presenters: Jorge Anaya
Faculty Mentors: Martín Meráz Garcia

Latinos influence the United States economy in many ways by having a powerful 28.6 million workforce according to (2016 US Bureau Labor Statistics). This translates to approximately 124 million in taxes each year and they provide 11.8% ($2.13 Trillion) of the total Domestic Growth Product (GDP) and those numbers increasing to 20% in 2020. From 2000-2015 the business in the Hispanic market has increased 46% according to Stanford Latino Entrepreneurship (2016) this provided more jobs and opportunities for many people. Using articles from ANNALSAAPSS September 2007 and Nera Economic Consulting. Statistics indicate that Latinos are and will influence the economy in positive ways that will help the U.S. grow.

College: CSS
**Neurocognitive Dysfunctions and Community Reintegration following a Traumatic Brain Injury, Location: Senior Hall, Room 101**

Presenters: Elaine Appleby, Nicholas Mehrnoosh  
Faculty Mentors: Jonathan Anderson

Traumatic brain injury (TBI) can produce significant changes that contribute to prolonged negative outcomes. The purpose of the following study was to investigate life after a TBI from a holistic perspective. A questionnaire consisting of 80 multiple-choice and short-answer questions across nine sections was distributed internationally via LimeSurvey with some conducted as in-person interviews. The subject matter covered the entirety of lived experiences following a TBI. Using NVivo 11 Pro open coding analysis was performed to categorize data into major themes to decipher patterns of progression from injury onset to functional outcomes. Our findings suggest that community reintegration following a TBI may become stifled by the impediment of adaptive social interaction that diminishes interpersonal motivation, awareness of self-perception, and functionally alters internal somatic states. Respondents indicated that specific neurocognitive dysfunctions (working-memory impairment, attention deficits, poor decision-making) interfered with their ability to execute Instrumental Activities of Daily Living (IADL) efficiently. Of these respondents 260 (59%) reported consistent self-isolation due to maladaptive psychosocial skills following their TBI. The neurocognitive dysfunctions coupled with difficulties performing IADLs noticeably increased psychological distress, decreased psychosocial engagement, and facilitated strained interpersonal relationships in 73% of respondents that self-isolated following a TBI. Among these respondents, 63% reported a disbanding of one or more interpersonal relationships. However, 34% eventually formed new relationships, friendship or intimate partner that helped diminish the overall adversity produced by neurocognitive dysfunctions. Overall, these reports suggest that positive community reintegration may help lessen prolonged negative outcomes following a TBI.

**Pramana in the Bhagavad Gita, Location: Senior Hall, Room 243**

Presenters: Jeremiah Serrell  
Faculty Mentors: Kathryn Julyan

The Bhagavad Gita is a profound philosophical and religious text that in many ways represents a culmination of the rich philosophical tradition in India. The dialogue within the text is directed at among many things, revealing the means of knowledge of both worldly and divine. The acknowledgement that ignorance and illusion ultimately restrict one’s capacity for spiritual liberation is a core feature of the Gita’s message as well as that of preceding philosophy. Hence the philosophical notion of Pramana (the Sanskrit word for “proof” or “means of knowledge”) is treated in the Gita in a unique way that integrates the ethical, metaphysical, and epistemological dimensions of the so-called “systems” of Indian philosophy as they were put forth in earlier texts called the Upanishads. This short lecture therefore focusing on means of knowledge in the Bhagavad Gita will meanwhile aim at shedding light on the broader scope of pramana’s significance in the path to liberation.

**The Geomorphology of Mars, Location: Senior Hall, Room 306**

Presenters: William Zobrist  
Faculty Mentors: Erin Dascher

While many people think of Mars as a “dead planet” with no active planetary core, tenuous atmosphere, and minimal water, it was once a highly active planet. Today there are still many active geomorphologic processes taking place that constantly reshape the varied landscapes of this desert planet. Over the last two decades the amount and quality of data available on the red planet has increased exponentially: Multiple rovers such as Spirit, Opportunity, and Curiosity have analyzed surface material first-hand, while satellites in Martian orbits such as the Mars Reconnaissance Orbiter have returned stunning high resolution imagery. This new data provides strong evidence of past activity, both endogenic and exogenic. A literature synthesis explores the rich variety of past and present geomorphic processes and features on Mars. Geomorphic features on Mars indicate distinct eras of active volcanism, more substantial hydrosphere, and a significant atmosphere in the past. Additionally, remote-sensed and land rover imagery provides evidence of ongoing geomorphic activity in the form of wind-driven aeolian processes, ephemeral small-scale fluvial erosion, and ice-dominated periglacial processes, visible through a variety of features such as shifting sand dunes, yardangs, pingos, and carved canyons. Fluvial drainage networks and alluvial fans.
2:30pm – 2:50pm

**The Revival of Atheistic Satanism in Contemporary America**, Location: Senior Hall, Room 203

Presenters: Kayla Hendricks
Faculty Mentors: Kassahun Kebede

For thousands of years Satanism has existed in a constant state of fluctuation and inversion. An everlasting state of expansion has birthed a kaleidoscope of satanic variation that thrives within each individual culture and era. Though the religion may seem taboo, many satanic values and principals are complimentary to modern American consumeristic, social, and political values. With focus on Atheistic Satanism through the lens of the two major Satanic atheistic churches, Antoine La Vey's elitist Church of Satan and Lucien Greaves' politically active Satanic Temple, research using cyber ethnography shows that atheistic Satanism demonstrates that in a society of social, scientific, and political progression there still remains an instinctive need within the most of us to be drawn towards secular religious groups and organizations that support ones moral and spiritual belief systems. For atheistic Satanists, the Satanic Temple provides a productive non-confirmative atheist based political activist group whereas the elusive Church of Satan provides and supports a foundation for the innate need for secular religious groups within atheistic communities.

**College: CSS**

2:30pm – 2:50pm

**“The Dead”: A Representation of James Joyce’s Conflict and Disillusionment with Irish Society**, Location: Senior Hall, Room 221

Presenters: Jocelyn Walters
Faculty Mentors: Max Hohner

The year is 1914. The nation of Ireland is eagerly anticipating legislation granting them independence from British rule and thus the triumphant return of Irish culture and society when World War I begins and delays any legislative action. In the same year, Irish author James Joyce publishes his short story collection entitled *Dubliners*. “The Dead” is one of the works included in this collection and is greatly representative of Joyce’s own beliefs about Irish society in the early 20th century. The protagonist Gabriel Conroy is at least semi-autobiographical for Joyce and his conflict is most embodied in his wife Gretta’s relationship with Michael Furey, her former lover. To Gabriel, Gretta represents present-day Ireland: a country that is declining and losing its culture. She is yearning for the pure Ireland of the past just as she is for Furey and her childhood romance. Gabriel initially rejects this connection just as he cannot reconcile his distaste for seemingly pointless Irish tradition with his desire for a more modern society. Gabriel’s epiphany comes in his realization that these two Irelands are interconnected and that to renounce the past is to also reject any hope for an evolved culture in the future. It is easy to connect this development to Joyce’s struggle with disillusionment and his own conflict regarding his cultural identity.

**College: CALE**

2:50pm – 3:10pm

**Academic and Career Development of Undocumented College Students: The American Dream?**, Location: Senior Hall, Room 304

Presenters: Leonardo Pineda
Faculty Mentors: Martín Meráz Garcia

When applying for college most students simply complete their applications, submit admission, and wait for a response. That is not the case for undocumented students who are seeking college admission. This paper analyzes education, the struggles that undocumented students have to overcome to get to a college. In the U.S there are approximately 1.8 million undocumented youth students and an estimated 65,000 of them graduate from an American high school every year but only an estimated 7,000 to 13,000 enroll in college. With the Multiple Case Study method more specific and descriptive answers uncovered regarding barriers students face in their pursuit of higher education. This paper provides evidence of the everyday challenges and obstacles undocumented students face just to get accepted into a college or become a graduate.

**College: CSS**
Genomic Analysis of the Diachasmimorpha longicaudata entomopoxivirus, Location: Senior Hall, Room 243

Presenters: Steven Smith
Faculty Mentors: Luis Matos

The Diachasmimorpha longicaudata entomopoxivirus (DlEPV) is an insect-specific poxvirus of the subfamily Entomopoxvirinae (EPV). It is a double-stranded DNA virus with an estimated size of 290–300 kb, characterized by extreme AT-richness (>60%). The DlEPV virion is 250–300 nm in diameter and undergoes morphogenesis in the poison gland accessory filaments of the parasitoid braconid wasp Diachasmimorpha longicaudata. The virus is deposited into a larval host (Anastrepha suspensa) on the surface of the wasp egg during oviposition. DlEPV replicates in and buds from the host’s haemocytes, disrupting the encapsulation response to the injected wasp egg. DlEPV virions were extracted from the poison glands of D. longicaudata, and a 75 µL sample of purified viral DNA was sequenced with Illumina. Millions of short reads were generated (<150 bp) and overlapping ends were used to assemble contigs (1,000—30,000 bp) in CLC Workbench. The contigs were translated using ExPASy Translate tool and select ORFs were queried against BLASTp for homolog identification. To further clarify homology, multiple sequence alignments (MSA) were performed (Clustal Omega) and phylogenetic trees were constructed (Geneious R10). Four genes involved in DNA replication and typical of poxviruses were identified (helicase, primase, polymerase, topoisomerase). DlEPV is currently unassigned within the EPV subfamily. Preliminary results reinforce its status as an EPV, but whole-genome characterization is a required step towards further classification. MSA and phylogenetic analysis of individual genes, such as those involved in DNA replication, promise to highlight unique traits in the DlEPV genome. These methods will also provide critical evidence that may lead to the assignment of the virus to an existing EPV genus, or to the proposal of an entirely new genus.

College: CSTEM

It is not all about classrooms: Examining the Importance of Club Sports, Location: Senior Hall, Room 101

Presenters: Jackie Ross
Faculty Mentors: Kayleen Islam-Zwart

The primary purpose of this study was to examine the relationship between the social integration and overall college adjustment to participation and membership in a club sport. Student retention and graduation from college is an important problem that many universities face. How much a student feels they belong at their university affects their likelihood of being retained. In order to assess the effects of club sports this study examined participants in other student organizations and students who do not participate in any student led organizations. Participants in recreational campus sports have shown in previous research to have a higher positive correlation with social integration and college adjustment compared to non-participants. The College Persistence Questionnaire was used to assess the amount of social integration and overall college adjustment and the Sense of Community Index 2 (SCI2) was used to further examine the social aspects of club sports and student organizations.

College: CSS

Latinx Identity and its Ties to Historical Trauma and Socio-Political Climates, Location: Senior Hall, Room 203

Presenters: Kim Jones
Faculty Mentors: Kassahun Kebede

Identity is a complicated subject to approach. It is always changing as the individual grows from their life experiences. For Latinx community they have a history of colonization racial mixing and changes that created who they are today. There is still a struggle with in the United States for many people that identify as Latinx. They are subjected to the bipolar acceptance of America due to racial tension immigration the economy and the need for work. These aspects and attitudes they experienced can change how one thinks about themselves and the culture they identify with within the places that live. The hypothesis of whether Latinx identity is influenced more from historical trauma or the socio-political climate was tested through focus group observations and interviews. The findings pointed towards sociopolitical climates having a larger influence on Latinx identity rather than historical trauma.

College: CSS
Potential Effects of Trauma on Refugees’ Language Learning Processes, Location: Senior Hall, Room 221

Presenters: Charis Ketcham
Faculty Mentors: Tracey McHenry

In the 21st century alone millions of refugees have been displaced from their homes often through compounded traumatic experiences. Many of these refugees have resettled in foreign countries where they are forced to quickly learn a new language in order to survive in their new home. As teachers of English in the USA seek to assist refugees in adult language learning or K-12 contexts, it is critical to consider what traumatic experiences students may have encountered or are encountering when the potential effects of these traumatic experiences on students’ language learning processes might be examined. How an awareness of these events and their potential effects might inform a teacher’s pedagogical practices. Throughout my research I address these very components by identifying types of traumatic experiences that refugees may encounter (pre-during and post-migration) and how effects of these traumatic events might manifest themselves in a classroom and what teachers can do to most effectively support refugee language learners through a safe learning environment. My discussion of this topic will draw on research from current published sources and may also draw from five interviews with Spokane professionals (four teachers and one school counselor) who have worked with refugee language learners.

College: CALE

Undocumented Immigration and why we need a Comprehensive Reform, Location: Senior Hall, Room 302

Presenters: Vanessa Uribe-Amador
Faculty Mentors: Martín Meráz García

With the large increase of undocumented immigrants coming into the US comes a lot of debate. Anti-immigrant rhetoric questions whether the government let these individuals stay in the US without any form or chances of getting a permanent residence? Or should the US allow these individuals to become citizens without penalizing them or having to wait decades? For years undocumented immigrants in particular Mexican Immigrants have been branded as “criminals” “taking advantage of American benefits” “taking American Job’s” but the reality is the majority of these individuals immigrate to the US to escape violence and corruption in their native country along with search for better opportunities and an education in the US. Drawing on peer review and scholarly sources, this research project investigates the following question. What needs to happen in order to form an amnesty or a more unforgiving process for these individuals to legalize themselves? Congress needs to find a way to facilitate legalization for millions so that they can “legally” be a part of American society and be able to formally get an education.

College: CSS

Keep your Binary Code and Lasers I want the Warmth of Wax, Location: Senior Hall, Room 306

Presenters: Trent Stauffer
Faculty Mentors: Galina Sinekopova

Analog is warm and digital is cold. This metaphor is what encouraged me to explore why analog music has stuck around despite the common thought being that digital music is superior. Analog reigned supreme up until the 80s when CDs hit the market but there is still something about analog that people cling to. Using phenomenology as the main theoretical approach and textual analysis as the main methodology, I explored the current thoughts and status of analog and digital music. The purpose of this presentation is to examine the characteristics of both analog and digital music in order to understand how the two have impacted music for the listener and the artist. The results of this research shows that analog remains alive because of its warmth and humane aspects in comparison to its colder and inhuman digital counterpart.

College: CSS
The quadriceps group in combination with the hamstring group work together to produce flexion and extension at the knee joint. The hamstring group is comprised of the semitendinosus, semimembranosus, and biceps femoris. The main movement of this muscle group is flexing the knee and extending the hip. Alternately, the quadriceps group is comprised of the vastus medialis oblique (VMO), vastus lateralis (VL), vastus intermedius, and rectus femoris. The main movement of this muscle group is extending the knee and flexing the hip. An imbalance between these two groups has been shown to be a factor in anterior knee pain (Werner 2014). Common imbalances include hypotrophy of the VMO, high activity of the VL, and poor flexibility of the flexors and extensors (Werner 2014). Injury to the knee joint is one of the most prevalent among athletic populations (Panken, Heymans, Oort, & Verhagen 2015). One of the reasons for this occurrence is due to the involvement within the kinetic chain. The knee absorbs forces from the foot, ankle, and lower leg before transmitting them to the hip joint, which can cause undue stress leading to knee pain. Kinesiology taping is a method which seeks to reduce pain, increase range of motion, and decrease inflammation by activating the neurological and circulatory systems (Campbell & Valier 2016). The focus of this study is to apply a taping technique using kinesiology tape to collegiate level athletes in an effort to reduce anterior knee pain while analyzing performance. The principal investigators will use the Visual Analog Scale to screen participants. The participants will complete functional tasks with and without tape. The quantitative and qualitative data will be recorded for comparison. Finally, the data will be analyzed for statistical significance. Due to high rates of injury and incidence of re-injury, the goal of this study is to identify potential interventions that will improve general strength while reducing levels of perceived pain.

Photo Manipulation in Journalism, Location: Senior Hall, Room 221

In the field of journalism, a gray area exists between acceptable and unacceptable photo manipulation. The goal of this project is to gain a better understanding of how strictly the current guidelines for photo manipulation are followed and of the role they play in the ethics of journalism. The project illustrates how readers and editors can better identify and verify potentially manipulated images. This project examines the ethical issues of photo manipulation by reviewing the Time Magazine O.J. Simpson cover, the Brian Walski-Los Angeles Times case, professional experiences from working photojournalists at The Spokesman-Review, and academic sources studying the ethics of editing in photojournalism. The project also shows methods of verifying an image such as analyzing lighting and shadows, verifying the owner of a photo, and checking the metadata of a photo. Ultimately, this project concludes that minimal photo manipulation is ethical but the perceived story of the photo must not be altered. If editors are unsure if a photo is altered, they are unable to verify if the photo should not be used in a journalistic setting.

Student Perspectives of Trauma-Informed Instruction and Services in Higher Education, Location: Senior Hall, Room 101

Research on Adverse Childhood experiences and the effects trauma has on adult health outcomes indicates a need for trauma-informed instructional practices in classrooms. However, limited research exists regarding trauma-informed practices in higher education settings. We know little about the needs, experiences, and perceptions of college students who have experienced trauma. The Substance Abuse and Mental Health Services Administration (SAMHSA) defines a trauma-informed environment as (1) realizing the impact of trauma and understanding paths for recovery, (2) recognizing signs and symptoms of trauma within their systems, and (3) responding by fully integrating knowledge about trauma into programs and practices (2012). The Oregon Health Authority (n.d.) defines the principles of trauma-informed care in the classroom as (1) creating safety, (2) trustworthiness, (3) choice, (4) collaboration, and (5) empowerment. For my study, I am seeking to understand student perspectives of trauma-informed practices and services on the university campus. I am conducting focus groups with approximately eight students per group. During the focus sessions, I provide definitions and examples of the five elements of trauma-informed care in the classroom and ask students to share their perceptions and experiences regarding these elements in classrooms. I will ask them not to identify specific courses or instructor names in describing their experiences. I will conduct discourse analyses to examine common themes in student perceptions.
Chicanos: An Equal Opportunity for Higher Education, Location: Senior Hall, Room 302

Presenters: Cecilia Zamora
Faculty Mentors: Martín Meráz García

Latinos are the most rapidly growing population group in the United States and now account for the Nation’s largest minority group. This creates a significant opportunity to move forward and grow into more than a typical stereotype. This paper will explore ways to ensure that Latinos can advance and work for the jobs that will lead the U.S. into the 21st century. The U.S. Census Bureau states that 17.8% of Latinos in 2016 graduated with a Bachelor’s Degree or Higher compared to Whites at 61.3%. The percentage of Latino students graduating from college of higher education is surprisingly low. Latinos have been underrepresented in undergraduate and graduate STEM (Science, Technology, Engineering, and Mathematics) programs and not being prepared in K-12 levels according to Schaeffer and Owens at the National Research Center for Education Statistics. Although Latino’s have the highest dropout rate they also have the highest school enrollment. This is despite the high school drop out rate being dramatically reduced since 2000 from 27.8% to as low as 9.2% in 2015. (U.S. Census Bureau 2016) The rise in school enrollment is also due to Latino’s overall population growth in the United States. In this paper I will be using peer review journals and scholarly sources to assess the obstacles Chicanos endure throughout their educational objectives. The goal is to assure Latinos are being provided with the proper tools and access to resources that will allow them an equal opportunity to succeed.

Key Words: Latinx, Discrimination, Education, Barriers, STEM

Ethnographic Study of Student Health Initiatives and Engagement at EWU, Location: Senior Hall, Room 203

Presenters: Tyka Keenan
Faculty Mentors: Kassahun Kebede

The American College Health Associate ensures that universities and colleges throughout the nation have established student health services departments. The sole purpose of these departments is to provide a variety of health services to students who live both on and off campus. The Health, Wellness and Prevention Services (HWPS) department at EWU acts as a hub to aid and direct students to access these resources to meet the demands of most health needs. They strive to, “support and empower student well being, growth, and development through education information and positive role-modeling.” However, less than half of the student population utilizes these services. This research utilized methods such as student and staff interviews, informal discussions, participant observation of health education events, and extensive library research. The goal of this research was to identify which students are not utilizing these services (on and off campus) and why, as well as what services they are utilizing. Interestingly, many students did not know the wide array of services there were available to them and were nervous to take advantage of what few services they were aware of. This was in part due to factors such as the possibility of unknown of hidden costs, range of services, misinformation or misinterpretation of available resources. The paper discusses what HWPS needs to change to reach these students and empower them to foster a healthier campus for working, learning, and living.

Latinx Graduation Rates among Students who have been part of the Juvenile System, Location: Senior Hall, Room 304

Presenters: Maria Torres
Faculty Mentors: Martín Meráz García

This research paper will consist of data from various demographics among Latinx adolescents who have taken part in the juvenile system to assess the impact their institutionalization had in high school graduation rates. With data from U.S. census school districts and juvenile system this work identifies the obstacles this student population face in their efforts to graduate. This work will explore to what extent adolescents from the dominant group face similar obstacles regarding their education. This work will show the consequences of being incarcerated at a young age violence and criminal activity Latinx teenagers have been exposed to in their communities and school environments. With this research I hope the reader gains a better understanding of why young Latinx juvenile offenders are more at risk of not acquiring an education and how a similar fate can be avoided for future generations of Latinx.

College: CSS
Perception of Death and Dying Among Members of the Temple of Beth Shalom, Location: Senior Hall, Room 306
Presenters: Broughton Hall-Cottrill
Faculty Mentors: Kassahun Kebede
This study focused on understanding the Jewish perceptions of death and dying among the members of the Temple of
Beth Shalom located within Spokane county of Washington state. Judaism has existed for nearly 6,000 years and
consists of almost 13,000,000 followers. Judaism’s prolonged existence has allowed diverse interactions between
Judaism and other civilizations resulting in the broadening of explanations and processes for how death and dying
should be conceptualized within the Jewish community. In order to understand how the Jewish community’s
perceptions of death and dying changed, I used participant observation, semi-structured interviews and document study.
My findings indicate that the Jewish community deals with death differently depending on the gender and age of the
deceased and the way in which the person passed away. Not all sects of Judaism follow the same set of rules and
guidelines of how death and dying should be understood. Some Jews view the soul as an immortal construct that will
exist even after death, though the idea is primarily favored by members of the Reform movement of Judaism. More
importantly, American culture has influenced the traditional practices and viewpoints on death and dying within Jewish
knowledge, determining factors for why and how Jewish knowledge has changed in modern society.

College: CSS

One Size Does Not Fit All: Exploring Online-Language-Learning Challenges and Benefits, Location: Senior
Hall, Room 221
Presenters: Renee Kenney
Faculty Mentors: Tracey McHenry
My presentation discusses the tension between traditional modes of language learning and the more contemporary
modes of online learning. These online spaces afforded by social media and other online learning platforms have
shown to serve as rehearsal spaces for students to practice and experiment with the language as they build
confidence and skills. I will argue that incorporating these online experiences allows composition and ESL teachers to
honor the individual learning by considering their personality and cultural differences which may inhibit face-to-face
partner and group work interactions in a traditional class.

College: CALE

Social Comparison and Cognitive Distortions in Depression, Location: Senior Hall, Room 101
Presenters: Allie Groves
Faculty Mentors: Theresa Martin
Historically, both cognitive therapy and research have focused on the extent and nature of cognitive distortions for
persons with depression (e.g., Beck 1976; de Graaf et al 2009; Leahy 2017). This presentation will cover the idea that
persons with depression also exhibit a particular distortion in their social comparison processes. In particular, a new
research project currently in progress is investigating the extent to which depression is related to the beliefs that other
people’s lives (levels of happiness or sadness) are believed to be significantly different than one’s own.

College: CSS

Tunisia’s Revolution and the Arab Spring, Location: Senior Hall, Room 243
Presenters: Nicole Lowe
Faculty Mentors: Julia Smith
The Tunisian Revolution began in late December 2010 with a 26 year old produce vendor setting himself on fire in
protest; it resulted in the toppling of longtime dictator Zine El Abidine Ben Ali, the dissolution of his ruling party, the
rewriting of the Tunisian constitution and the transition to democratic leadership. The international ripple effects of
revolution and civil disobedience campaigns that followed in places like Egypt, Libya, Yemen, Iraq, and Syria were coined
“The Arab Spring.” Scholars, activists, and media speculated that we were witnessing the ushering in of a new era of
democracy in the Arab World. Today, places like Yemen, Syria, and Libya remain engulfed in warfare while Egypt suffered
a military coup that landed it back in the grip of authoritarianism. This presentation uses Tunisia as a case study to
help make sense of the differing outcomes of the Arab Spring. In this presentation, I will examine the elements that
resulted in democratic transition in Tunisia, and compare and contrast factors such as media access, militarization and
amount of international intervention in order to explore why its results were not replicated elsewhere during the Arab Spring.

College: CSTEM
Creating Digital Context: How Digital Catalogs Perpetuate Cultural Misunderstanding, Location: Senior Hall, Room 203

Presenters: Angeline Nesbit
Faculty Mentors: Michael Zukosky

This article outlines how the current cataloging system for digital archives distorts the real context of Eurasian artifacts which serves to perpetuate a Eurocentric view of those artifacts and prevents in depth scholarship. Providing context and avoiding “othering” of the culture which created an ethnographic object is increasingly difficult with current systems of acquisition and categorization within museums developed in the European tradition. The current portrayals and forms of documentation of Eurasian artifacts often perpetuates a sense of mystery around the area and downplays the cultures of Eurasia. The lack of awareness of the region that many people in the United States have leads to the continuation of stereotypes and creates a cycle of misrepresentation as future curators and archivists without a particular interest in the area grow up exposed to a dismissive and discriminative narrative. This article argues that the future of scholarship dealing with Eurasian archeology would be greatly enriched by careful consideration of the unique needs of the area and a greater effort by curators and archivists to understand the items they catalog.

College: CSS

Immigrant Legal Status and Its Effects on Academic Performance of High School Students., Location: Senior Hall, Room 302

Presenters: Raul Valverde
Faculty Mentors: Martín Meráz Garcia

Parent’s immigrant status and financial instability affect Chicano Students mentally leading to depression and stress which in turn impacts their academic performance and learning. The language barrier is another factor affecting the academic success of Latino students who experience exclusion and marginalization. These are some factors that lead to many Chicano students to drop out of school. Scholarly sources and peer-reviewed journal articles are used as the method of analysis to draw conclusions regarding effective programs that improve the high school graduation rates of Latino students with undocumented family members and financial instability.

College: CSS

Oppression, Location: Senior Hall, Room 304

Presenters: Mavrick Barela
Faculty Mentors: Martín Meráz Garcia

In this paper I used peer review and scholarly sources to highlight the root causes of the clash of these two cultures. Starting during the formative years of the U.S. one of the largest land acquisitions came from the forced signing of the Treaty of Guadalupe Hidalgo. This initial disparagement of Mexican immigrants caused isolation and alienation of the Latinx community as a whole. While bringing about the end of the Mexican American War, borders were changed creating new cultural barriers and separation. Geography plays an integral role in the hindrance of growth. Primarily due to older generations of both the Anglo and Latinx population often force their polarizing views on the younger masses. Due to the high Mexican-American (Latinx encompasses the Latina/o, Chicana/o, Native Mexican and etc population) population density in areas surrounding the border creating a constant source of tension since the redrawing of the borders. The animosity that remained after the new borders were redrawn at the conclusion of the war in 1848 have remained until the present. Though they have evolved overtime into deeply rooted cultural and social ideals that are sustained and nurtured by each side from within and fueled by the other. These effects show to this day even with the Latinx community itself because of it.

College: CSS

Written Scientific Communication to Lay Audiences: A Proposed Course of Study, Location: Senior Hall, Room 306

Presenters: Shelby Miksch
Faculty Mentors: Kate Crane

This article outlines a proposed rhetorical analysis-based course of study designed to familiarize students with fundamentals of effective science writing intended for lay audiences. Course modules include instruction in rhetorical analysis and effective discourse followed by practical application of these skills to existing materials in print and digital media. Students will further demonstrate their competency by creating written works of their own on science topics which will be suitable for publication outside of the academic sphere. This course is intended as part of a supplemental certificate or minor to be taught concurrently with a science technology, engineering, or mathematics major at the baccalaureate level. It may also prove useful for communication studies, English, and journalism students.

College: CSS
Social scientists and philosophers have contemplated the conflict between cultural relativism and moral absolutism as they work to reconcile ideas of universal human rights with the modern understanding that morals and beliefs are culturally constructed. In this research, I use an anthropological perspective to explore the real-world application of philosophers' theories about how to deal with this conflict. I will apply through a social science perspective the models philosophers have used to moderate between relativism and absolutism to real-world problems centered on women's rights. I focus predominantly on the issues of abortion and female genital cutting. These two case studies are important to examine for this problem for two reasons. First, there is little consensus about how to respond to them ethically. Second, the socially dominant opinions in the United States emphasize very different parts of the human rights discourse in their focus on individual decision making and cultural pressures. As a result, these cases offer an important perspective for evaluating the real-world consequences for each theory. This research elucidates some areas in which future theorists should focus in order to better alleviate the impasse between moral absolutism and cultural relativism—particularly as the issue relates to how we view activism and human rights.

College: CSS

The purpose of this study was to describe the scale of mental imagery and identify a percentage of the population to have aphantasia: a phenomenon where individuals lack the ability to conjure mental images. Ninety-one participants (87.6% of whom were female, with an average age of 22.42 years) completed a web survey accessed through the SONA website. The participants then completed the survey involving 17 questions in regard to their mental imagery. Results found 1.1% of the sample had symptoms consistent with aphantasia as comparable with Faw's 2.5% (2009). The distribution of individuals' imagery abilities was also consistent with Galton's findings that the vast majority lie somewhere in the high-middle on a mental imagery scale (1880).

College: CSS

Journalists have become increasingly concerned within recent years about the ease of video manipulation by unscrupulous online posters. In an age in which people increasingly rely on video for their news consumption, video manipulation has become a significant ethical issue. This research project was designed to create a checklist that will guide new journalists through ethical video verification for honest reposting and retweeting on their personal social media pages. The project examines Craig Silverman's book *The Verification Handbook: A Definitive Guide to Verifying Digital Content for Emergency Coverage* and interviews with The Spokesman-Review Online Producer Rob Kauder and other academic journalism studies. This project produces a checklist journalists may use to verify the video source and the date.

College: CALE

As we've seen numerous examples of in English television shows, Latinos and Latinas often are portrayed in ways that are consistent with stereotypes. Latino men are often portrayed as violent criminals or gangbangers who are bad to women and Latina women are often portrayed as being very sexual often having roles as prostitutes and things of that nature as well as being very loud-mouthed and obnoxious. The purpose of this research paper is to expose how Latinos are almost never portrayed as mainstream characters—often being portrayed as sidekicks or lowlifes. This paper will also seek to expose how Latino characters are portrayed as more violent on English television than on Spanish television and how these stereotypes in English television are so recognizable and deeply rooted that even young children are very familiar with the stereotypes that are being portrayed. This research paper will reference several articles that take into account Latino and Latina perceptions of themselves on English television.

Key Words: Latinos, Latinas, Television, Stereotypes, Children

College: CSS
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<tr>
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<td>4:00pm – 4:20pm</td>
<td><strong>Retention of Chicanos in Post High School Education</strong>&lt;br&gt;<strong>Presenters:</strong> Everardo Garcia&lt;br&gt;<strong>Faculty Mentors:</strong> Martín Meráz Garcia</td>
<td>Senior Hall, Room 306</td>
<td>This study will be reviewing the reasons why Chicano/a students have a high entry rate in post high school education and why graduation rates are so low. The following factors will be considered: gender, race, culture, financial support, network building, and self-image of Chicano/a students. From 1996 to 2012, colleges have had the number of Hispanic students increase on average 240% (Fry 2008). This paper will discuss research done by researchers who are experts in their field and have been peer reviewed for validity. The parameters used by researchers were students who had finished high school and attended post high school education. Research proves that Chicano students are more likely not to graduate from college than their European counterparts. These studies also prove that male Chicano students are less likely to graduate from post-secondary institutions than female students. The findings from this study can help Universities and organizations increase the number of Chicano/a students that attend school and finish with a degree.</td>
<td>Key words: Chicano, Retention, College, Dropout, Graduate</td>
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<td>4:00pm – 4:20pm</td>
<td><strong>The Role of Geomorphology in Archaeology</strong>&lt;br&gt;<strong>Presenters:</strong> Christy Berg&lt;br&gt;<strong>Faculty Mentors:</strong> Erin Dascher</td>
<td>Senior Hall, Room 203</td>
<td>The discipline of geomorphology is essential to the interpretation of archaeological sites. Geomorphology can contribute to the discipline of archaeology by providing insights into how to reconstruct paleo-landscapes, provide effective survey strategies, interpret past environments, and identify sites that are at risk of being lost. This study presents a general overview of the role that geomorphology can play in archaeological discovery, preservation, and interpretation. Sea level rises, sedimentation, soil erosion, and glacial retreat are common geomorphic processes that can affect archaeological sites. These processes are often responsible for exposing site locations, preserving, moving, and/or destroying cultural material. Currently, sea level rise is of great concern in archaeology because it is putting coastal sites at risk of being lost forever. Additionally, certain archaeological sites have been significantly impacted by the changing landscapes such as “Kennewick Man,” in Washington state, which was exposed by soil erosion along the river bank. There are many examples of how geomorphology can have significant affects on archaeology as well as provide an understanding of the landscape. Geomorphology can guide archaeologists toward more effective survey techniques, interpretation, and conservation of important cultural sites.</td>
<td>College: CSS</td>
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<td>4:00pm – 4:20pm</td>
<td><strong>Why are Latinxs Underrepresented in Medical Professions?</strong>&lt;br&gt;<strong>Presenters:</strong> Elizavet Mariscal&lt;br&gt;<strong>Faculty Mentors:</strong> Martín Meráz Garcia</td>
<td>Senior Hall, Room 302</td>
<td>Between 1960 and 2013, the number of Physicians in the United States with Latinx background increased by 3.8%. For example, 7% out of 70,000 bachelor's degrees in 1986 were acquired by Latinxs. The research examined will address why the health industry is lacking Latinxs in medical professions. The methods used will consist of scholarly and peer-reviewed articles. Based on preliminary research, the factors contributing to this underrepresentation include lack of role models and resources, as well as urban schools that are infested with violence, drugs, and poverty as they are not equally funded. Lastly, Latinx students do not feel encouraged attending predominantly white institutions. Some solutions proposed include placing more programs like Gear Up, AVID, or Excelencia in Education into schools and from an early age establish a successful mindset in Latinx students.</td>
<td>College: CSS</td>
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<td>4:10pm – 4:30pm</td>
<td><strong>Launching Successful Sports Podcasts in a Booming Industry</strong>&lt;br&gt;<strong>Presenters:</strong> Michael Brock&lt;br&gt;<strong>Faculty Mentors:</strong> Jamie Neely</td>
<td>Senior Hall, Room 221</td>
<td>In the Twitter age of sports consumption, the audience craves quick clips, memes, and instant reaction. Gone are the days of looking forward to reading the box scores in the newspaper the next morning; consumers can learn the top plays and the outcome of a game without ever tuning in live. The purpose of this research is to determine the factors that make certain sports podcasts successful and the most effective ways to duplicate them. This study includes an interview with Jade Hoye of the Leverage the Chat podcast network, examination of several other professional sports podcasts in the industry, and an analysis of trends in the field. This research concludes that today’s sports fans desire a look to the future rather than a recap of what they already know. Most successful sports podcasts focus on driving the conversation forward while remaining engaged with their audience. Three factors emerged that drive successful podcasts: fan engagement, forward-thinking analysis, and strong advertising interest.</td>
<td>College: CALE</td>
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The Mexican - US Border: The Making of an Anthropology of Borderlands

**Presenters:** Joaquin Garcia

**Faculty Mentors:** Martín Meráz Garcia

This paper reviews the background and current issues regarding the regional sections created by the Mexican – US border. Early geographic and anthropologic border regions are considered as land that gave way for Mexican immigration and with it a new way of living and perspectives. These borderlands are seen as the land that created a plethora of clashes and contradictions between two cultures and saw the rise for the dominance of the area by one dominant power the U.S. From these clashes many paradoxes have emerged. This study uses peer review and scholarly sources as the method to draw conclusions on the role capitalism plays in these borderlands and how these spaces can be reimagined as fertile grounds for diverse cultures.

**Keywords:** Capitalism, US – Mexican Border, Chicanos, Chicanas, and Borderlands

Dismantling Colonization in the Classroom

**Presenters:** Claire Israel

**Faculty Mentors:** Martín Meráz Garcia

Many argue that the neocolonial culture that permeates the American public school system directly leads to the disengagement of Latina/o students. In my research I aim to unpack each element of this assertion. Though there is still a lot of work to do many school districts and state public education authorities have introduced various innovative ethnic studies programs into their curriculums in attempts to diversify the content and reengage the Latina/o students in the public education system today. In the last 18 years the national dropout rate of Latina/o students has dropped by almost half. By way of interviews and critical analysis of the national education system based on primary and secondary sources I will identify ways the education system disenfranchises Latina/o students and point to ways to further decolonize the education curriculum. I will examine 3 case studies of the positive effect ethnic studies programs had on young Latina/o students. Finally I will conclude with ways to utilize the methods of educational decolonization to help reengage Latina/o students on a local scale.

Education Disadvantages And Advantages of Chicano’s in the Medical Field

**Presenters:** Shreya Patel

**Faculty Mentors:** Martín Meráz Garcia

The reason for writing this research paper is to inform the audience and present them with an understanding of Chicano/Latino’s education obstacles that are in their way of getting jobs in the medical field. Among these challenges include poverty rates, language barriers and being a first-generation college goer. This paper discusses the potential opportunities and benefits of Chicano students entering the medical profession. My study will assess the current state of Chicano/Latino’s in the medical profession and how they can shape their future. This study relies on scholarly sources and peer review journals as the method of analysis from which its conclusions are drawn.

Bringing “Kalos” to the Modern Age

**Presenters:** Peyton Owen

**Faculty Mentors:** Dana Elder

Is it possible to covet something for what seems like an eternity only to grow tired of it shortly after obtaining it? In a society that favors function over fashion we can encounter some problems. Namely when too many of our possessions are concerned mainly with function we run the risk in losing pride in ownership. This phenomenon only serves to perpetuate the tireless cycle of buying, selling, trading in and trading up. Perhaps the ancient Greeks could help. One word we 21st century folks could stand to reclaim from them is “kalos.” “Kalos” is defined as “beautiful and useful.” The Greeks did not make a distinction between what was utilitarian and what constituted art. Objects as simple as a bowl or a spearhead were adorned with intricate depictions and design elements. In contrast with today we get around in ugly vehicles we work and live in beige boxes constructed by cost-cutting contractors and most of us wear clothing that does nothing other than cover us up. If we can’t afford to make something that does what it needs to do while being beautiful we shouldn’t make it in the first place. We’re not totally hopeless; we have wonderful Calatrava structures and gorgeous functional objects such as the famous Eames chair and ottoman. That being said when was the last time you strolled through one of these buildings or reclined in one of those chairs? It’s time to bring “kalos” objects to the mainstream as the Greeks did over 2,400 years ago. I would submit that if everyone had something they truly enjoyed something they could use and love to look at it would create a stronger pride in ownership. Perhaps adopting “kalos” into our vocabularies and our ideologies could work to fight against the platonexia that plagues our capitalistic culture.

**College:** CSTEM
Podcasting in Journalism, Location: Senior Hall, Room 221
Presenters: Samuel Cropper, Austin Fuller
Faculty Mentors: Jamie Neely

Podcasting is a recent news medium that mimics radio broadcasts in the digital era with accessible episodes that can be downloaded for future enjoyment or viewed online. Podcasts differ from radio broadcasts by providing episodes that vary in length. Podcasts are beginning to produce substantial yearly growth yet best practices for developing successful podcasts are not yet concrete. This study researches four discrete news podcasts: Serial, Benjamen Walker’s Theory of Everything, NBC Nightly News, and MSNBC Morning Joe. It develops a rubric—listing consistency, interest in host, interest in audience, in the field, and transitions—for creating engaging podcasts. Using the categories of the rubric, this research will pitch a serialized podcast for a news agency.

College: CALE
Poster Presentations
Comparing Units in Different Curricula Addressing the Domain Operations & Algebraic Thinking from Grades K-2, Location: Hargreaves, 2nd Floor - 14B

Presenters: Gabriela Rios
Faculty Mentors: Jacqueline Coomes

Since the introduction and adoption of the Common Core State Standards in Mathematics (CCSSM) new curricula have been developed. Elementary grades CCSSM differ greatly from previous standards in that the progression of the standards within the CCSSM through the grades were developed from research-based learning trajectories. Learning trajectories integrate the four key aspects for teacher knowledge in mathematical concepts and procedures with student thinking about the concepts particular tasks and instructional strategies that help students develop the concepts (Daro2011). Understanding the progression of student learning and how to teach the content requires teachers to have or learn pedagogical content knowledge related to the progression that they understand and can use the integration of curriculum, students, and instruction about the particular content to advance student learning. While some curriculum studies have helped the mathematics education community understand how curricula affect teacher learning (Remillard 2005) no examination has been made of curricula designed to teach the CCSSM on how it supports novice teacher learning of the progressions in the CCSSM. In this curriculum study I examined four standards in the domain of Operations and Algebraic Thinking from grades Kindergarten through 2nd. I will first examine progression for the domain (Carraher et al.2006) then develop a framework of pedagogical content knowledge and apply that to examine the curricula for supports within the curriculum materials for teacher learning.

College: CSTEM

21 Year Old Division I Female Tennis Player with Left Knee Plica: A Case Report, Location: Hargreaves, 2nd Floor - 9C

Presenters: Martin Waldrip
Faculty Mentors: John Gerber

Plicae are synovial folds that are residual from knee formation in embryo. These plicae can become inflamed through trauma such as a fall on the knee or from a twist with the foot fixed. This mechanism and associated symptoms such as locking and snapping of the knee joint lead to a common misdiagnosis of knee plica as a torn meniscus (Prentice 2014). The athlete in this case study is a 21 year old female tennis player who first presented symptoms in March 2017 after the athlete injured her posterior cruciate ligament (PCL). Rest during the off season period did not alleviate symptoms. An arthroscopy revealed inflamed plicae which lead to a debridement of the knee. She since has started the rehabilitation process and is progressing well. The purpose of the case report is to describe the anatomy of knee plica and the signs and symptoms pertaining to this condition. Also the surgical procedure and rehabilitation used will be discussed. Providing a case report on this condition will assist athletic trainers become more knowledgeable and aware of a condition they may encounter in their profession.

College: CALE

A Study of the Structural and Magnetic Properties of Antiferromagnetically-Coupled Molecules, Location: Hargreaves, 2nd Floor - 6B

Presenters: Danielle Villa
Faculty Mentors: Jamie Manson

Antiferromagnetic molecules (AFM) can be built utilizing metal centers and unique combinations of halides and/or organic ligands. Hereinwe report one such class of molecules based on NiX2(3,5-lut)4 (lut = lutidine) where X is a halide ion such as FCl and I or HF2. This particular system is unique because for the first time we have successfully synthesized and characterized the entire halide-family. The crystal packing of these molecules affords a quasi-1D chain-like structure revealed by X-ray diffraction data. The tenability of this system will be demonstrated as we are fully able to tailor the single-ion properties (D) of the Ni(II) center simply based on the ligands attached to it. In addition the halide spacers systematically increase in size and so too does the magnetic exchange interaction (J) between the molecules. My work focuses on the synthesis of crystals of each compound to fully explore their magnetic properties with an eye toward the potential to introduce additional properties through chemical means in the future.

College: CSTEM
**A Study of Waterworks and Their Uses by Ancient Civilizations in Africa, the Middle East and Southern Europe**

**Location**: Hargreaves, 2nd Floor - 3B

**Presenters**: Sean Austin, Matthew Busch

**Faculty Mentors**: Richard Ondorff

Ancient Egypt, Rome, Greece, and Mesopotamia each approached irrigation methods differently to deal with their needs. We compare the various methods that these advanced civilizations used to move water to sustain their societies in arid climates. We look at each culture's geographic location (Egypt in northern Africa, Rome and Greece in southern Europe, and Mesopotamia in the Middle East's Fertile Crescent) and climate in relation to construction and use of their respective waterworks. We compare length of user, resilience of construction, and quantity of water utilized for each culture. We examine a range of engineered waterworks from irrigation canals in Egypt, subterranean qanat's in Mesopotamia, above-ground aqueducts in Rome and finally to the first sophisticated underground plumbing systems in ancient Greece.

**College**: CSTEM

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**Applications for Measuring Leaf Surface Area**

**Location**: Hargreaves, 2nd Floor - 5A

**Presenters**: Steven Mathis

**Faculty Mentors**: Ruth Kirkpatrick

The purpose of this experiment was to compare the accuracy of the leaf-surface-area calculations from digital images using several digital cameras and software programs. Digital images of western sword fern (Polystichum munitum (Kaulf.) C. Presl) fronds were obtained from field-collected, pressed, and dried fronds. The standard for calculating leaf surface area has been from Xerox scanned images analyzed with ImageJ free software. A high-resolution digital camera, iPhone camera, and Android phone camera were used to generate digital frond images. Frond surface area was calculated using ImageJ and Easy Leaf Area software. Data suggests leaf surface area calculations from the high-resolution camera images analyzed with ImageJ software were closest to leaf surface area calculated from Xerox scanned images analyzed with ImageJ. In the future, sword fern frond-surface-area data will be used to compare differences in frond surface area due to variable environmental factors such as annual rainfall across Washington state sword fern research sites.

**College**: Community College of Spokane

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**Are they Serial? Forensic Files vs. Serial Killers**

**Location**: Hargreaves, 2nd Floor - 15A

**Presenters**: Marissa Elsinghorst, Allyson Murphy

**Faculty Mentors**: Charles Lopez

This case study was based on documented data from over 400 criminal cases from the Netflix series "Forensic Files." In order to record the details of our data collection, we utilized the Excel spreadsheet previously established by consensus of the overall group of researchers. The variables examined were motive, weapon(s), and gender. To compare commonalities in data of serial killers to that of our "Forensic File" perpetrators, we used statistics from Radford University. We added bar graphs that exploited our research question in order to more suitably visualize our comparisons. In respect to our gender variable, there were no notable differences. The "Forensic Files" male and female perpetrators were 88.56% and 11.44% respectively. Using the serial killer statistics, males and females were 88.60% and 11.40% respectively. When observing the data set from Radford University, enjoyment was the largest drive for serial killers; coming in second, financial gain almost unvaried in percentage (35.22% and 33.42% respectively). Interestingly, "Forensic Files" criminals murdered passionately with crimes of sex, jealousy, and anger. Interestingly, blunt objects, chemicals, and strangulation were more commonly used by serial killers while the "Forensic Files" general offenders sided with firearms and knives. In conclusion, gender differences between general criminals and serial killers were not prevalent; men are statistically more likely to kill and commit crimes than women. Based on our data, serial killers are more likely to kill for exhilaration while common criminals kill viscerally. The weapon(s) result demonstrates the claim that serial killers view murder entertaining by correlating personal weapons with serial killers and hasty methods with general offenders.

**College**: CSS
Cold Mothers Influence on Secondary Psychopathy and Risky Sexual Behavior, Location: Hargreaves, 2nd Floor - 8B

Presenters: Michelle Budiman
Faculty Mentors: Kurt Stellwagen

A recent report from the Center of Disease Control (CDC) indicated that college-age adults are an at-risk population due to the prevalence of a number of problematic sexual behaviors including lack of condom use (which places individuals at risk of contracting sexually transmitted infections) lack of birth control use (earlier sexual experiences and being intimate with multiple sexual partners). Research has found a link between cold parenting and risky sexual behaviors (Fulton-Marcus & Ziegler-Hill 2014). Literature regarding the development and perpetuation of risky sexual behavior has focused on the role of family influence specifically in regard to cold parenting (a lack of support and emotional warmth; Roemmele & Messman-Moore 2011; Simons-Burt & Tambling 2012). One possible way that cold parenting may lead to risky sexual behavior is via the mediating influence of secondary psychopathy. Etiologically, cold parenting has been found to be significantly associated with the formation of psychopathic traits which persist into adulthood (Gao et al. 2010; Jonason-Lyons & Bethell 2014; Kimonis-Cross-Howard & Donoghue 2013; Loney-Huntenburg-Counts-Allan & Schmeelk 2007).

The present study examined the statistical mediation among cold mothers, secondary psychopathic traits, and attitudes related to risky sexual behaviors. It is hypothesized that among female participants, the perception of having a cold mother is statistically linked with attitudes which endorse risky sexual behaviors via psychopathic traits. There were 74 college-age female participants from an undergraduate psychology course. Data was collected through the use of paper and pencil method which included self-report questionnaires on parental bonding, psychopathic traits, and attitudes on risky sexual behaviors.

College: CSS

Cultural Effects on Selection of Major at a University, Location: Hargreaves, 2nd Floor - 10C

Presenters: Jose Diaz, Eduardo Olmos-Joaquin
Faculty Mentors: Heidi Hillman

This study examines the influences culture may have on students' choice of study at a university. Past research suggests that White/Caucasian males are more likely to major in STEM (science, technology, engineering, and mathematics) than compared to White/Caucasian women and minorities. Although there are gender differences in choice of major between White/Caucasian Asians/Asian Americans and White/Caucasian women are not affected and choose STEM related majors regardless of gender. Intent to major in a science related field is affected by exposure to math/science coursework, self-efficacy beliefs, and social economic status. Data collection occurred on the Eastern Washington University campus through questionnaires and a survey using a Likert scale to measure responses. Our results indicated that interest in STEM occurred more towards White/Caucasian males while minorities and White/Caucasian women showed more interest in social science degrees.

College: CSS

Effects of Parenting Children with Autism Spectrum Disorders on Parental Stress, Location: Hargreaves, 2nd Floor - 10B

Presenters: Michelle Danico, Heidi Hillman
Faculty Mentors: Heidi Hillman

We investigated how child characteristics—specifically children with an Autism Spectrum Disorder—influence parenting stress. Not only does parenting stress have deleterious effects on parent mental health, it also influences the child's level of functioning. The current prevalence rate of Autism is 1 in 68, indicating a rise of parents raising children with developmental delays. As one would expect, parents of children with developmental delays experience higher levels of stress than parents of typically developing children. After carefully reviewing the literature on the topic, the attention that the largest gap came in the form of fathers. Most of the information about parenting stress and raising children with developmental delays came from mothers. This research aimed to add to the literature by including fathers when analyzing how parenting a child with special needs affects parental stress. In addition, most studies focused on parenting stress within families of children in middle childhood. We focused our research on parents with newly diagnosed children.

College: CSS
8:30am – 9:45am  
**P** **Feel the Berk: The Use of Satire and Familiar Political Campaign Strategies to Make People Laugh and Sell a little Sea Food**, Location: Hargreaves, 2nd Floor - 13C  
*Presenters: Alisianna Winston*  
*Faculty Mentors: Patricia Chantrill*

My research into Roger Berkowitz’s satirical 2016 presidential as involved the use of close textual analysis to reveal the ad’s pattern themes and persuasive strategies. The as uses humor and a familiar color scheme to suggest a bipartisan appeal. It employs pseudo policies that mock real candidates without naming them. Berkowitz CEO of Legal Sea Food seven created a 30-second to expand his “campaign” reach and gain attention in his Boston location. Some viewers were convinced the campaign was real. Ultimately Berkowitz’s satire resulted in an increase in Legal Sea Food’s reach and product sales.

*College: CSS*

8:30am – 9:45am  
**P** **Geotechnical Engineering Properties of Mt. Mazama Ash and its Influence on the Strength of Latah Creek Floodplain Soils**, Location: Hargreaves, 2nd Floor - 1B  
*Presenters: Nick Buechler, Aaron Cleveland*  
*Faculty Mentors: Richard Orndorff*

We tested Mt. Mazama ash from the Latah Creek area of Spokane for the geotechnical engineering properties according to ASTM standards. We determined the specific gravity, Atterberg limits, particle size distribution and the optimum water content for compaction. We then conducted a series of Unconfined Compressive Strength tests on the Mt. Mazama ash to determine its behavior under stress. We conducted three strength tests with varying amounts of compactive effort to determine how the ultimate and yield strength changed with the increased compactive effort. We then looked at the behavior of previously tested Latah Creek floodplain soils with Mazama ash interbeds. After analyzing the data we were able to determine that each soil behaved differently with ash interbeds. The presence of the ash increased the strength of Latah soil 1 and reduced the strength of the Latah soil 2.

*College: CSTEM*

8:30am – 9:45am  
**P** **Hegemonic Masculinity Portrayed on Instagram: A Case Study of Seattle Seahawks’ Quarterback Russell Wilson**, Location: Hargreaves, 2nd Floor - 14A  
*Presenters: John Collett*  
*Faculty Mentors: Patricia Chantrill, Chadron Hazelbaker*

This research study focuses on the use of social media by professional athletes to reinforce hegemonic masculinity. This particular study was a case study looking specifically at the Instagram account of Seattle Seahawks Quarterback Russell Wilson. The research was based on five features of masculinity developed by Nick Trujillo (1991) when he analyzed print and television representations of former Major League Baseball Pitcher Nolan Ryan. The five features of (1) physical force and control (2) occupational achievement (3) familial patriarchy (4) frontiersmanship (5) heterosexuality were used as the framework of a content analysis looking at Russell Wilson’s posts on Instagram during the 2017 NFL season. The results showed that all five features of hegemonic masculinity themes were reinforced by Wilson’s Instagram account with occupational achievement being the most common feature. Based on this data there’s reason to conclude that social media is matching mainstream media’s reinforcement of hegemonic masculinity.

*College: CSS*

8:30am – 9:45am  
**P** **History and Impacts of the Columbia Basin Irrigation Project Central Washington**, Location: Hargreaves, 2nd Floor - 4A  
*Presenters: Cole Butcher, Jayce Lazuruhrctt*  
*Faculty Mentors: Richard Orndorff*

Located in Central WA the Columbia Basin Irrigation Project covers 670,000 acres of irrigated land supplied by the Grand Coulee dam and reservoir. The Grand Coulee dam was constructed in 1942 in order to reroute and supply sufficient water to the holding reservoir of Banks Lake for the expansion of farmland across Central WA. The estimated value of the Columbia Basin Project to the US economy is about 1.7 billion dollars coming largely from power generation and crop production across the formerly arid Central Washington desert. The Columbia Basin Irrigation Project is expected to allow for the expansion of agriculture to roughly 1.1 million acres. We present the history of the Columbia Basin Project’s overall structure and finally the benefits and consequences that have been generated by the implementation of this project.

*College: CSTEM*
8:30am – 9:45am  P  How Damming of Rivers in the Southwestern United States Influenced Riparian Vegetation Patterns, Location: Hargreaves, 2nd Floor - 1C

Presenters: Acacia England
Faculty Mentors: Richard Orndorff

Some of the largest and most impactful and most expensive structures ever built by humans are dams. 4 of the 7 largest and most influential dams ever built in the southwestern United States are located on the Colorado River. For an area that receives an average of less than 10 inches of rain per year, irrigation and water storage provided by dams are important drivers of agriculture, urbanization, and other development that would be impossible otherwise. But dams cause many negative impacts to the ecosystems they fragment that go along with their benefits to human societies. The study of the effects of dam construction on riparian ecosystems has been ongoing for many decades. It is known that the construction of dams affect rivers by modifying stream flow and sediment regimes, flooding patterns, and riparian communities (Sankey 2015). The purpose of this study is to assess how the damming of rivers in the southwestern United States has changed riparian vegetation patterns on those rivers. I'm interested in whether dammed rivers in the southwest support the same species diversity as undammed rivers and whether either condition of river supports more or less invasive or non-native species. I will review historical vegetation patterns from previous studies and GIS data for dammed and undammed rivers and compile my findings into a larger document for comparison. I hypothesize that damming southwestern rivers decreases the riparian vegetation cover and diversity and that it may lead to invasion by species better suited to the lower stream flows and decreased levels of sediment cycling.

College: CSTEM

8:30am – 9:45am  P  Hydrology of Death Valley, Location: Hargreaves, 2nd Floor - 3A

Presenters: Greysen Bjork
Faculty Mentors: Richard Orndorff

Death Valley, located in southeastern California, is the hottest desert on earth and one of the driest. The Badwater Basin in Death Valley at 282 feet below sea level is also the lowest land surface elevation in the western hemisphere. During the Ice Ages it was home to a deep freshwater lake called Lake Manley but today it appears to the casual visitor to be an arid wasteland. However, the valley is home to little-known riparian and wetland habitats along with hundreds of natural springs. From Death Valley’s dramatic form down to the life it supports, hydrologic processes have played a particularly influential role. An examination of Death Valley tells this story.

College: CSTEM

8:30am – 9:45am  P  I Won’t Tell You I’m the Best! I’ll Show You: Re-election bid for County Commissioner Achieves a Win and National Attention through Relatable Humor and Subtle Strategy, Location: Hargreaves, 2nd Floor - 13B

Presenters: Gerald Daugherty
Faculty Mentors: Patricia Chantrill

My Symposium research will be presented on a 2016 political campaign by Gerald Daugherty who ran for the commissioner of Travis County, Texas. This ad was recognized globally on news stations for its humor that made it stand out to most of the other bleak ads. I perceived this humor as much as anyone else however through watching and analyzing this ad constantly I saw beyond just that to the smaller visual cues that had a positive impact on the viewers such as the fact that Gerald didn’t once address the viewers however instead of telling us his passion he showed us. I’ll go on to prove the importance of these details and how he won people over without them even knowing why. The main point follows the idea that when someone tells you that they are the best at what they do it won’t be as powerful or could act as a drawback to viewers compared to those who show it without having to say it. The poster I will construct will not be plagued with minuscule images surrounded by layers and layers of text rather I will represent what the ad was about through large pictures of those in the ad and their varied expressions at Gerald. Not only will I have visuals from the ad but I will also have images outside of the ad to show examples of those who rely on telling viewers of their importance. Kanye West comes to mind when he declared himself “…the greatest living rock star on the planet”. Outside examples such as this will help the audience identify my topic with what’s going on in pop culture and make it more relatable to them and their life.

College: CSS
Impacts of Changing Snowmelt Patterns in the Sierra Nevada Mountains

*Location: Hargreaves, 2nd Floor - 2A*

*Presenters: Melissa Cupp, Rachel Lunstroth, Maria O'Toole*

*Faculty Mentors: Richard Orndorff*

In the Sierra Nevadathe dominant mountain range in California and home to the highest peak in the contiguous 48 states,snowpack plays a crucial role in the regional water cycle. Reductions in seasonal snowpack negatively impact human populations (California is the most populous US state) as well as natural systems. Changing climate has reduced snowpackleading to a multitude of problems. For examplesnowmelt is the major source of water for irrigation of fruits and vegetables in California. Reduced snowmelt threatens current agricultural production and impacts cities and towns that depend on a farming economy. We look at historic data and computer models of snowpackas we discuss some of the impacts of changing snowmelt patterns on society and natural systems.

*College: CSTEM*

Implications of Bond Disorder in S=1 Kagome Lattice

*Location: Hargreaves, 2nd Floor - 6A*

*Presenters: Jacqueline Villa*

*Faculty Mentors: Jamie Manson*

Long Range Ordering (LRO) can be inhibited through a geometric frustration of dominant exchange interactions. This is found to be evident in some magnetic lattices (eg:triagonalhexagonal and kagome lattices). It has been observed that introducing structural disorder into some of these systems may restore LRO and inhibit frustration of the system. On occasionthe addition of poly-HF adducts (HF2-H2F3-and H3F6-) lifts frustration and restores LRO. This research focuses on the kagome lattice of [H2H][2[Ni3F6(-Fpy)12][SbF6]2 despite the presence of a frustrated lattice typesigns of frustration are absent from all thermodynamic measurements. We attribute this to bond-disorder among H2F+ cations that occupy sites between every NiF2(3-Fpy)4 molecular unit within the kagome plane. The impact of the disorder is significant in that it breaks up the exchange pathways and ultimately reduces the magnetic interaction between nickel(II) ions. In the futurewe aim to design a similar material wherein these cations are not disordered such that a fully frustrated lattice can be realized experimentally.

*College: CSTEM*

Investigations of Polystichum munitum

*Location: Hargreaves, 2nd Floor - 5B*

*Presenters: Charles Nitschke*

*Faculty Mentors: Ruth Kirkpatrick*

The purpose of this study was to investigate Polystichum munitum (Kaulf.) C. Presl gametophytes through laboratory culture. One project investigated optimum spore sowing density by using a ten-step serial dilution with a dilution factor of two to create Petri dish cultures containing gametophytes that could be easily observed. Data was collected by counting gametophytes within in a one square centimeter area of the Petri dishes and was used to determine an average density yielded by each dilution. Though the accuracy of the results are in questiondata suggests a concentration between one fourth and one eighth is optimal. Another project investigated reproductive success of gametophytes that were isolated for eight months followed by putting previously isolated gametophytes together and measuring reproductive success by counting the number of sporophytes produced. Results indicated isolated gametophytes did not produce sporophytessuggesting an inability to self-fertilize. Howeverthese isolated gametophytes retained the ability to reproduce as suggested by the production of sporophytes soon after isolated gametophytes were cultured near otheronce isolatedgametophytes.

*College: Community College of Spokane*

Let Trump Do His Job: A Close Textual Analysis of a Political Campaign

*Location: Hargreaves, 2nd Floor - 13A*

*Presenters: Blas Ortiz*

*Faculty Mentors: Patricia Chantrill*

I researched an unusual 2017 campaign ad released on behalf of President Donald Trump after several months in office. The ad is titled"Let Trump Do His Job." A close textual analysis identified verbal and visual strategies used to support and advance the arguments. Trump used this ad to frame his struggle as a fight against "enemies," including political opponents and the mediaand the promotion of his accomplishments while in office. Research suggest that Trump is receiving very high negative coverage from the media. An effort to provide an alternative to negative coverage may be the primary motivation behind the unusually-timed ad. And yetTrump may also be promoting his re-election in 2020considerably earlier than the public would be accustomed to. The unique "enemy" frameworkthe unusual timing and the use of the media to provide an alternative to mediated coverage-all of these strategies serve to remind Americans that their President remains as “unpredictable” as he promised he would be.

*College: CSS*
**Liquefaction Potential of Selected Soils from Latah Creek, Spokane WA, Location: Hargreaves, 2nd Floor - 2C**

*Presenters: Nick Buechler, Aaron Cleveland*

*Faculty Mentors: Richard Ondorff*

We tested the threshold frequencies for liquefaction at variable earthquake wave amplitudes for two soil samples from the Latah Creek floodplain as well as a sample of Mt. Mazama ash from the same location. Latah Creek in Spokane WA follows the Latah Fault and soils along the creek are frequently saturated. Liquefaction is the process in which seismically-induced shaking of saturated soil increases soil pore pressures, reducing particle to particle contacts and causing the soil to liquify. Using the methodology developed by previous EWU geology students and a shake table designed and built by EWU mechanical engineering students, we performed multiple tests on each sample and identified frequency thresholds for liquefaction failure.

**College: CSTEM**

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**Love me Tinder, Location: Hargreaves, 2nd Floor - 7A**

*Presenters: Courtney Camyn*

*Faculty Mentors: Theresa Martin*

Love me Tinder.....

This poster reviews a recent research study started in PSYC 313 - Research Methods that investigated the use patterns and motivations of a sample of over 400 college students for their use of the dating app Tinder.

**College: CSS**

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**Making Virtual Reality Accessible in Education, Location: Hargreaves, 2nd Floor - Table 18**

*Presenters: Meg Lybbert*

*Faculty Mentors: Galina Sinekopova*

This paper examines some of the accessibility requirements in higher education and evaluates whether or not virtual reality (VR) technologies can currently be considered compliant with those requirements. Disability and accessibility laws and policies are described at a federal and state level. Textual analyses of content relating to VR and accessibility found via ProQuestEBSCOhost and Google are used to determine different aspects of accessibility. Findings indicate that overall VR is not accessible and that the non-academic community realizes this. However, very little academic sources address the issue. Various Internet writers suggest various solutions to different aspects of the lack of inaccessibility but there is no generally applicable solution to the problem as a whole. As a result, VR may not be able to enter more areas of higher education because it is limited by who can use it and who is excluded from its full use because of physical disabilities.

**College: CSS**

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**Mapping the Montecito Mudslide with GIS, Location: Hargreaves, 2nd Floor - 5C**

*Presenters: Stefan Dewey*

*Faculty Mentors: Stacy Warren*

This poster is based on a project revolving around the mass wasting event that occurred in Montecito California on January 9, 2018. The landslide killed 21 people, destroyed 125 homes and damaged 214 homes, and the median cost for a house was 4.1 million dollars. The cost in damages is still unknown. Making this one of the most destructive mudslides in American history. A month earlier the Thomas Complex fire occurred burning thousands of acres of forest and vegetation that prevented slides like these from happening. The poster will be depicting the slide and exploring the reasons why the slide happened. The purpose of this project is to delve deeper into the factors that caused this event to happen and whether it was preventable. To study these questions I will use Geographic Information Systems (GIS) to assess the environmental and human factors playing a role in the sliding. To do this I will look at factors that are prone to causing landslides, including the surface geology of the slide area, vegetation type of the same area, and land use for the Montecito area. I will calculate the slope of the slide's location and at what the local precipitation and drought patterns were like during the years prior to the incident. After these factors are assessed, I will use them to create detailed maps depicting slide area and other areas that could slide that are close to the Montecito vicinity. The poster will also include other maps such as a locational map and maps showing keys factors controlling whether the hills slide or not. Included with this will be before and after satellite imagery of the landslide giving a visual representation of the destructive nature that these kinds of events can be capable of. Finally, in the poster, I ask if the Montecito event was preventable and what precautionary actions the people of Montecito can take to prevent further problems so the people of Montecito have to consider abandoning the area and relocating.

**College: CSS**
Masculine Stereotypes of Lesbians and Masculine-Looking Women: Potential Advantages of Assumed Agentic Qualities in Employment, Location: Hargreaves, 2nd Floor - 11C

Presenters: Marysa Rogozynski, Jackie Ross, Acea Sands
Faculty Mentors: Amani El-Alayli

Prior research has shown that lesbian women are thought to be more similar in terms of trait characteristics to heterosexual men than to heterosexual women. Additionally, masculine appearing women are often attributed stereotypes in line with leadership roles and may be favored for such positions over feminine appearing women. Research on the potential advantages that lesbian and masculine appearing women may have in the hiring process for traditionally male jobs is limited. This study addresses these potential advantages and the possible mediating role of perceptions of agentic personality traits. Specifically, it was hypothesized that a woman who is lesbian and/or has masculine facial features would be rated as more hirable and deserving of a higher salary due to higher ratings of agency. To test this participants read a job description for an Executive Director position and a vignette describing a female job applicant (described as having either a girlfriend or a boyfriend) which included her photo (with either masculine or feminine facial features). Participants rated the applicant on agentic trait hirable and salary allocation.

We obtained partial support for our hypotheses with results suggesting that women with more masculine facial features receiving preferential treatment in the job hiring process. This research can help us understand how different types of applicants may be steered towards different forms of employment.

College: CSS

Maternal Control, Shame and Alexithymia, Location: Hargreaves, 2nd Floor - 8C

Presenters: Alyson Pogue
Faculty Mentors: Kurt Stellwagen

There is research to suggest that a females’ negative relationship with her mother can affect her psychological adjustment as an adult. One example of this negative relationship is a mother who is controlling (i.e. not letting her child make her own decisions, invading her child’s privacy, and making her child feel dependent on her) of her daughter. This type of negative relationship is associated with many psychopathological symptoms including alexithymia and shame (Kooiman et al. 2004; Kapur & Rai 2013). A controlling mother can make her child feel like she has a lack of autonomy, a sense that she is incapable of doing anything on her own, and that what she does is always unacceptable. These can lead to feelings of learned helplessness and a means of self-regulation by disengaging her emotions (Kapur & Rai 2013; Uji Kitamura & Nagata 2009). This disengagement could later obstruct the ability to identify what one is feeling and be able to appropriately express such emotions (Zimmermann Rossier Meyer de Stadelhofen & Gaillard 2005). The present study examined statistical mediation among controlling mothers, shame, and alexithymia, hypothesizing that among females, perception of a controlling mother is statistically associated with alexithymia via the influence of shame. A bootstrapped mediational regression analysis was conducted to confirm the hypothesis (beta weight = .18). The analysis was also conducted for males and for fathers and their daughter’s but neither had significant findings. These results suggest that a maternal control can have long-lasting negative effects on her daughter.

College: CSS

Mutagenesis of the bteA Gene Encoding a Bordetella Virulence Protein, Location: Hargreaves, 2nd Floor - 6C

Presenters: Courtney Cannelora, Megan Hall, Shaena Leland
Faculty Mentors: Suzanne Bassett

Bordetella Type III Secretion System Effector A (bteA) is a virulence protein found in members of the genus Bordetella which include important pathogens of humans and other mammals such as Bordetella pertussis causative agent of the whooping cough. The bteA protein appears to be an important factor in the ability of these pathogens to cause diseases leading to rapid killing of a wide range of mammalian cells. The aim of this project is to determine which regions of the protein are important for mediating cell death. This project involves manipulating the bteA gene of a common laboratory strain of Bordetella bronchiseptica called RB50. The B. bronchiseptica bteA gene is nearly identical to the gene found in B. pertussis yet this microbe is easier to grow in culture and does not typically cause illness in humans. The effects of the mutations on cytotoxicity were determined in cell culture. Pinpointing amino acids important in cytotoxicity may help to reveal the mechanism of action of BteA. An enhanced understanding may lead to more effective therapies and vaccines.
Nutrition Knowledge Between Health and Non-Health Majors in College-Aged Undergraduates: A Pilot Study, Location: Hargreaves, 2nd Floor - 12A

Presenters: Taylor Barron, Haley Chicoine, Kiara Hoxie, Jasmine Magana
Faculty Mentors: Katie Taylor, Annika Vahk

Nutrition is an important aspect in contributing to overall health; yet many individuals have a limited knowledge or are misinformed about nutrition. These factors may negatively influence nutrition quality and therefore increase possible health risks. PURPOSE: To examine the general nutrition knowledge between health and non-health majors in undergraduate students. METHODS: The General Nutrition Knowledge Questionnaire obtained from the University College London was distributed to two health major courses and two non-health major courses. A total of 77 participants (body mass index (BMI) 25.4±5.4 kg/m²) completed this four section 20-minute survey. Additionally demographic information such as sex and age were collected. Data were analyzed using independent samples t-test. RESULTS: A significant difference was found between health and non-health majors in section 2 (food groups and their nutrients; health: 70.4±10.9% non-health: 64.2±10.4%; p=0.013) and section 4 (health problems or diseases related to diet and weight management; health: 72.2±12.8% non-health: 64.1±14.2%; p=0.011). Health majors scored higher than non-health majors on these two survey sections. Although females scored higher than males in all four survey sections the difference was not significant (p>0.05). Additionally no significant difference was found in BMI between majors. CONCLUSIONS: Undergraduate health majors scored significantly higher than non-health majors in survey sections related to nutrient information and health/disease yet no differences were found in BMI. Our findings suggest that although health majors may have a greater understanding the application of this knowledge may be lacking. Despite limitations such as sample size and distribution of males and females these findings suggest research needs to investigate the application of nutritional knowledge to health status in college students.

College: CALE

OneBusAway OpenSource Implementation for Spokane Transit Authority, Location: Hargreaves, 2nd Floor - 15B

Presenters: Fletcher Baker, Braden Boettcher, Kevin Escalante
Faculty Mentors: Brian Kamp

The OneBusAway open source project is a consortium of representatives from public sector transit agencies, commercial firms, academic research representatives, and interested individuals. OneBusAway includes a robust, secure, scalable backend that accepts, stores, archives, and interprets real-time vehicle location data in combination with transit schedules and other related data. OneBusAway offers a suite of application programming interfaces (APIs) that facilitate the support the development of a wide range of third party applications based on actual vehicle locations and on scheduled and predicted arrival times.

College: CSTEM

Sex and Feelings, Location: Hargreaves, 2nd Floor - 11A

Presenters: DeSean Dean, Emily Harbine, William Michel, Verna Sarquilla
Faculty Mentors: Heidi Hillman

In a culture that is becoming progressively more sexually affluent and open it is important to determine whether an individual’s sexual history has an impact on their feelings of self-worth. In our study we researched the impact of reporting one’s sexual history and comparing oneself to individual perception of society’s sexual standards have on their self-esteem. We used a thirteen-question survey in which people answered questions regarding their sexual history and their self-esteem. In order to screen for variables two surveys were administered: one asked the self-esteem questions prior to the sexual history questions and the other asked sexual history questions prior to the self-esteem questions. We did not find a substantial correlation between reported levels of self-esteem and sexual history. However, we found the average female participant’s perception was they engaged in a higher number of sexual acts than the average peer their same age. Interestingly the exact opposite trend was found with the male participants. The average male participant reported that his peers engaged in more sexual acts than they did. We conclude that even though there was little correlation within our findings that it would be beneficial to conduct further research regarding sexual history and self-esteem.

College: CSS
**Six Degrees of Tweetification, Location: Hargreaves, 2nd Floor - Table 16**

***Presenters: Konnor Welsch, Tim Green, Kyle Hermens, Alex Plagman***

***Faculty Mentors: Brian Kamp***

The intent of this application is to demonstrate data connections in a visually engaging way for the user. The primary basis for these connections is the concept of 'six degrees of separation' between individuals. This application allows the user to input a pair of Twitter hashtags or Twitter user handles. Given two hashtags it will construct paths from one hashtag to another from a chain of mutually associated hashtags. Given two user handles it will display paths in a similar fashion through a chain of mutually shared followers. The application also features a word cloud generator based on associated hashtags and a geographic display of tweet locations by hashtag usage.

**College: CSTEM**

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**Social Media Use and Effects on Relationships, Location: Hargreaves, 2nd Floor - 10A**

***Presenters: Nicholas Claymore, Jessica Cox, Christina Hatzinikolis, Victoria Mcklasky***

***Faculty Mentors: Heidi Hillman***

Social media use and its effect on interpersonal relationships has been an increasing discussion topic in the modern age. Our research focused on the impact of daily use of social platforms and whether it had a positive or negative influence on friendships, families, and partnerships. Our survey was an online survey consisted of 13 questions. Participants were 49 males, 180 females who used social media. In conclusion, we discovered that social media use was mainly a facilitator—rather than a detractor—for relationships. Most individuals used their social media to keep up to date with long distance relationships, created new memories through photos and interactions, and a platform for news and entertainment.

**College: CSS**

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**Social Networking Sites Social Comparison and Self-Esteem, Location: Hargreaves, 2nd Floor - 7C**

***Presenters: Mariah Nepean***

***Faculty Mentors: Theresa Martin***

In this study, social networking site (SNS) uses social comparison and self-esteem were observed in individuals ages 18 to 62. Forty-eight participants responded to an anonymous online survey. First, participants were asked to report self-esteem values using two scales; the State Self-Esteem Scale (Heatherton & Polivy, 1991) and the Rosenberg Self-Esteem Scale (Rosenberg, 1965). Then participants were asked to report their SNS behaviors (type of SNS’s they used, time spent on SNS’s per day and whether or not they engage in social comparison while using SNS’s). Finally, participants responded to a 10-item scale intending to measure social comparison using the Social Comparison Scale (Gibbons & Buunk, 1999). Initial results indicated a negative relationship between SNS and self-esteem but more recent data have been collected and are currently being analyzed.

**College: CSS**

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**Sustainability of PhoenixAZ Water Resources Amidst Drought and Climate Change, Location: Hargreaves, 2nd Floor - 3C**

***Presenters: Eric Perry***

***Faculty Mentors: Richard Orndorff***

Phoenix, Arizona located within the desert southwest has seen very significant growth in the past several decades posing questions about long term water resource sustainability. Phoenix retrieves its water from the Salt and Gila rivers, dammed reservoirs in the surrounding areas, and withdrawal from groundwater. Despite droughts increasing in the precipitation-deprived region as a result of climate change, the region continues to grow in population while still producing crops, strongly threatening adequate water storage for future generations and maintaining biological ecosystems. Other side effects include the threat of subsidence from the declining water table and the survival of fish species in the Gila River. Potential plans of remediating dwindling water supplies include tighter water rights practices that appropriately decrease water use during drought periods, discouraging non-native plant species that require excess water supplies including many types of grasses and crops, and more water reuse and reclamation practices.

**College: CSTEM**
8:30am – 9:45am

P The Benefits of Humility: Correlations with Gratitude, Happiness and Joy, Location: Hargreaves, 2nd Floor - 14C

Presenters: Brandy Hutton, Kirsha Johnson
Faculty Mentors: Philip Watkins

Humility has long been overlooked in psychological studies but may have important benefits to our overall subjective well-being. The most widely accepted definition among researchers of humility includes viewing oneself realistically and accurately and involved focusing on others more than oneself. We conducted a two-month prospective study where 150 students filled out questionnaires at two separate time points. The questionnaires included the Hill Humility Scale, Satisfaction with Life Scale (SWLS), The short version of the Gratitude Resentment and Appreciation Test (GRAT-S), the Personal Entitlement Scale (PES) and two joy scales (SJS and DJS) along with other measures. Partial correlations showed that humility predicted significant increases in gratitude, happiness and joy over time. Moreover, Time 1 humility predicted significant decreases in personal entitlement as measured by the DES. These prospective correlations provide promising evidence that humility promotes well-being and positive traits while it appears to inhibit entitlement and other negative traits. Humility may be a human virtue that is important to the good life and creating positive, prosocial relationships with others.

College: CSS

8:30am – 9:45am

P The Columbia River as a Plumbing Model, Location: Hargreaves, 2nd Floor - 1A

Presenters: Aaron Cleveland, Bo Faltermeyer, Ethan Holman
Faculty Mentors: Richard Orndorff

Washington’s Columbia River basin has always been a plentiful source of water for the region. This basin consists of 2,500 square miles of lakes and waterways and approximately 129,000 square miles of drainage. The Columbia River, the fourth largest river in North America, is the primary source of water for both agriculture and electricity in the Pacific Northwest. From Columbia Lake in British Columbia to its mouth at the Pacific Ocean near Astoria, Oregon, the Columbia River travels 1,270 miles and has many major tributaries, the largest of which are the Kootenai, Pend Oreille, Snake, and the Willamette Rivers. This vast river basin has had numerous tributaries and over time has taken completely different pathways to reach the Pacific Ocean. We present a detailed plumbing model of the current river channel and its major tributaries, dams and reservoirs. We also compare maps of the river channel to show how it has been changed over time by nature and by humans. This comparison shows not only the effect of time and natural processes but also shows the anthropogenic impact on the Columbia River.

College: CSTEM

8:30am – 9:45am

P The Correlation Between Self-Esteem, Depression and Perceived Stress Among College Students, Location: Hargreaves, 2nd Floor - 8A

Presenters: Rachel Swindell
Faculty Mentors: Theresa Martin

The purpose of this investigation was to find out if there was a relationship between self-esteem, depression and perceived stress among college students. A total of ninety-seven students (84% female) from Eastern Washington University completed the survey through the Department of Psychology’s Sona Research Participant system. The survey included demographic questions, the Rosenberg Self-Esteem Scale (Rosenberg, 1965), Perceived Stress Scale (Cohen et al., 1983) and Beck Depression Inventory (Beck et al., 1961). Using the Pearson correlation coefficient, the results showed a strong positive correlation between perceived stress and depression and a strong negative correlation between self-esteem and depression and a strong negative correlation between self-esteem and perceived stress. Together, the results support the conclusions from previous findings about the relationship between the three variables of interest.

College: CSS
**The Effects of a Simulated Wildfire on the Soil Food Web**, Location: Hargreaves, 2nd Floor - 4B

*Presenters: Monica Villegas*

*Faculty Mentors: Justin Bastow*

As temperatures across the Pacific Northwest increase due to climate change, the area is expected to see an increase in wildfires. With a decrease in overall snowpack accumulation and earlier snowmelt, the region faces prolonged drought periods that can cause vegetation to become stressed and vulnerable to fires. This can lead to an increase in wildfires across the region, harming homes, forests, wildlife, and soils. We tested the effects of simulated wildfires on two different types of soil; a grassland and a forest soil. Wildfires were simulated in a greenhouse experiment using a weed torch. Cans of soil were assigned to one of three treatments: a control, a light intensity fire (five minutes), and a high intensity fire (ten minutes). Soil samples were collected before the burn, immediately after, and approximately four weeks after the initial burn for soil moisture and nematode abundance. Nematodes were used as a measure of the soil food web productivity. Soil moisture was significantly affected immediately after the burn with a p-value of 0.002 but was not significantly affected four weeks post-burn with a p-value of 0.589. However, simulated wildfires did indeed have a significant effect on nematode abundance showing a 97% decrease in nematode abundance in grassland soils and a 98% decrease in forest soils with a p-value of

**College**: CSTEM

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**The Effects of Antheridiogen on Polystichum Munitum**, Location: Hargreaves, 2nd Floor - 9B

*Presenters: Derek Delong, Maggie Evans, Duc Hoang, Minhanh Tuong*

*Faculty Mentors: Ruth Kirkpatrick*

The purpose of this experiment was to investigate the sensitivity of Polystichum munitum (Kaulf.) C. Presl gametophytes to the presence of antheridiogen that was obtained from Ceratopteris richardii Brongn. The sex of a gametophyte may vary depending on the conditions of its surrounding environment. In many homosporous fern species, once a gametophyte forms a meristematic cleft, it will produce a pheromone called antheridiogen. The antheridiogen producing gametophyte usually produces egg containing archegonia first, thus becoming a female gametophyte. This pheromone triggers the surrounding gametophytes to halt their growth and produce antheridia containing sperm, thus becoming male gametophytes. Antheridiogen systems promote cross fertilization and genetic variation through the generation of single sexed gametophytes in the production of sporophytes. Spores of *P. munitum* and *Onoclea sensibilis* L. were sown on antheridiogen enriched and unenriched agar. Germinating spores were observed and photographed on a weekly basis to record observations. Experimental results suggest that *P. munitum* gametophytes are sensitive to antheridiogen as indicated by the presence of many small male gametophytes and fewer meristematic and female gametophytes.

**College**: Community College of Spokane

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**The Effects of Fire on Micro-Nutrients in Ponderosa Pine Forest Soils**, Location: Hargreaves, 2nd Floor - 4C

*Presenters: Tyler Talbott*

*Faculty Mentors: Justin Bastow*

The purpose of my project is to determine the effects of surface burning on the quantity of plant micronutrients in ponderosa pine forest soils. Plant micronutrients are elements required by organisms in small quantities like iron, zinc, manganese, copper, boron, nickel, and molybdenum. Micronutrients are vital to several enzymes in plants that help perform functions like photosynthesis, respiration, uptake of production nitrogen, and breakdown of cell wall metabolism. Plants’ source of the minerals is the soil. A change in micronutrient build-up in the soil could result from large amounts of organic matter burning on the surface. Phosphorous and nitrogen cycling is generally the subject of fire ecology research and information on micronutrients is lacking. A significant change in the concentrations of these elements could be detrimental to future plant growth in the area. I sampled ponderosa pine forest soils that had undergone controlled burning recently and in years past at Turnbull National Wildlife Refuge in eastern Washington state. I randomly sampled the top ten centimeters of soil in sites that were burned in 1997, 2002, 2003, 2004, 2005, 2006, and 2017. I tested the samples mineral composition using a portable x-ray fluorescence analyzer. I also tested the soils organic matter content, moisure content, and I am currently working on a textural analysis. I expected the results to show a significant difference in mineral composition based upon the year the soil was burned and the texture of the site. I got statistically insignificant results from all tested elements against burn year using an ANOVA. For example, iron vs burn year P = .307. I am currently working on using some nonlinear models and incorporating the samples texture profiles to understand other factors that determine the variation in micronutrients across the study sites.

**College**: CSTEM
The History and Societal and Environmental Impacts of Dworshak Dam, Location: Hargreaves, 2nd Floor - 2B

Presenters: Nick Buechler, Joe Nunley
Faculty Mentors: Richard Orndorff

We discuss the importance and history of the Dworshak Dam which is located on the North Fork of the Clearwater River in Clearwater County, Idaho. The construction of Dworshak Dam began in 1966 and the concrete gravity dam was completed in 1973, resulting in the creation of the 53-mile-long Dworshak Reservoir. This reservoir holds 4.3 cubic kilometers of water and provides hydroelectricity for the surrounding area and also acts as an important control on floods. This dam is the tallest straight axis structure in the western hemisphere and was named after Senator Henry Dworshak who was crucial in acquiring congressional approval and funding for the dam project. We discuss the benefits of the dam as well as its impacts on natural systems.

College: CSTEM

The Lack of Acknowledgement of the Contributions by Colombian Women during and After the Armed Conflict, Location: Hargreaves, 2nd Floor - 12B

Presenters: Maria Rivera Diaz
Faculty Mentors: Martín Meráz Garcia

Analyzing the many different ways that women are involved in civilian conflict—whether it be in combat or in supporting roles—reveals the circumstances they have operated while under predominantly male dominated guerrilla groups. Specifically in the country of Colombia after the Fuerzas Armadas Revolucionarias de Colombia (FARC) was formed. Women have taken on multiple roles even when the conditions or treatment might be inhuman nevertheless to keep the community from collapsing they keep fighting for a brighter future. In addition when the peace talks began historically only men get to be in the room making the final deals. The purpose of this research is to examine the factors that lead to women being excluded from leadership and decision making roles as well as the social and political implications of excluding women.

College: CSS

Turbid Water: Assessing Water Clarity in Hangman Creek and the Spokane River, Location: Hargreaves, 2nd Floor - 9A

Presenters: Abby Gillen
Faculty Mentors: Maija Brown

Hangman Creek, also known as Latah Creek, is one of the Spokane River's main tributaries. Over the years, the Hangman Creek watershed has suffered numerous forms of degradation; research suggests that anthropogenic disturbances in the watershed have led to a noticeable decline in water quality, riparian vegetation, and wildlife habitat.

Hangman Creek's hydrological response to these changes include intermittent high discharge events and increased turbidity levels. Turbidity is an optical property of water quality; turbid water is characterized by a murky or muddy appearance, which can be an indication of poor water quality. Since Hangman Creek is a major contributor to the Spokane River, excessive turbidity levels in Hangman Creek directly affects water clarity in the Spokane River downstream of their confluence. To monitor turbidity levels in Hangman Creek and the Spokane River, citizen scientists along with students and faculty from Spokane Falls Community College have recorded discharge values and sampled turbidity levels 3 to 5 days a week since late December, and will continue to do so until early July.

Transparency tubes (60cm) have been used to determine turbidity levels at four separate locations along Hangman Creek and the Spokane River. This study aims to compare natural observed turbidity levels in the Spokane River with turbidity levels observed downstream from the point in which Hangman Creek merges into the Spokane River. Data gathered will provide valuable information regarding seasonal turbidity levels in Hangman Creek and the intensity of its impact on water clarity in the Spokane River.

College: Community College of Spokane
College: CSS

Using Errors to Remember Correct Answers, Location: Hargreaves, 2nd Floor - 11B
Presenters: Kaelyn Baker, Kelsey Schelin
Faculty Mentors: Danielle Sitzman

When provided with corrective feedback both older and younger adult participants are more likely to correct errors on a test of general knowledge when they have higher levels of prior knowledge compared with errors that are accompanied by low levels of knowledge (for example, errors about the capital of Australia versus errors about the capital of Kiribati). However, it is unclear whether participants are overriding the incorrect information in their memory and replacing it with the new correct information or whether they are using those errors strategically as mediators between the question and the correct response. In the current experiment both younger adult and older adult participants answered 120 general knowledge questions that ranged in difficulty. After providing a response they were asked to rate their confidence in the responses and then asked to rate their prior knowledge of the correct answer. After a delay of either 6 mins or 1 week participants were asked to answer the same 120 questions in the same conditions and then rate their confidence in the responses. Results suggest that younger adults are more likely to use their errors strategically as mediators between the question and the correct response as opposed to replacing their old memories. It is anticipated that for errors that have been correct.

Validity of treadmill calorie counters: Comparison to indirect calorimetry in adult males, Location: Hargreaves 15C
Presenters: Andrea Hart, Miguel Perez, Andrew Schimmels, Harli Spurgeon, Rachael Stabbert, Harvinder Toor
Faculty Mentors: Anthony Campitelli, Katie Taylor

Using Errors to Remember Correct Answers, Location: Hargreaves, 2nd Floor - 11B
Presenters: Kaelyn Baker, Kelsey Schelin
Faculty Mentors: Danielle Sitzman

When provided with corrective feedback both older and younger adult participants are more likely to correct errors on a test of general knowledge when they have higher levels of prior knowledge compared with errors that are accompanied by low levels of knowledge (for example, errors about the capital of Australia versus errors about the capital of Kiribati). However, it is unclear whether participants are overriding the incorrect information in their memory and replacing it with the new correct information or whether they are using those errors strategically as mediators between the question and the correct response. In the current experiment both younger adult and older adult participants answered 120 general knowledge questions that ranged in difficulty. After providing a response they were asked to rate their confidence in the responses and then asked to rate their prior knowledge of the correct answer. After a delay of either 6 mins or 1 week participants were asked to answer the same 120 questions in the same conditions and then rate their confidence in the responses. Results suggest that younger adults are more likely to use their errors strategically as mediators between the question and the correct response as opposed to replacing their old memories. It is anticipated that for errors that have been correct.

“I Am Not Alone in My Suffering”; Implicitly Measuring the Common Humanity Factor of Self-Compassion, Location: Hargreaves, 2nd Floor - 12C
Presenters: Eman Alasiri, Dana Biliena, Brittany Patterson
Faculty Mentors: Russell Kolts

(According to self-compassion researcher Kristin Neff (2003) self-compassion encompasses three factors: self-kindness, mindfulness, and common humanity. Previous research based on self-report data suggests that when applying compassion people tend to be harsher on themselves and more compassionate toward others (Neff 2003a). This study aimed to explore the factor of common humanity and whether people tend to identify with this factor more in relation to their own experiences or those experiences of others. Most of the previous research on self-compassion used explicit measures which can be scientifically limiting (Greenwald & McGhee & Schwartz 1998). The current study developed an implicit measure of common humanity using the Implicit Relational Assessment Procedure (IRAP), a well-established measure of implicit beliefs that is based on Relational Frame Theory (Hayes & Barnes-Holmes 1997; Barnes-Holmes; Healy & Hayes 2000; Hayes). Stimuli in the IRAP were drawn from Neff’s (2003) sub-scales of common humanity and isolation. Participants completed the IRAP (the implicit measure) as well as two explicit measures; Neff’s Self-Compassion Scale and an IRAP analogue (the same sentences that were presented in the IRAP). The D-IRAP scores for the four trial types in the IRAP and the four categories of the IRAP-analogue were entered into a one-way repeated measures analysis of variance (ANOVA) and this yielded a significant effect (p < .0001). Results suggest that an implicit level participants expressed more common humanity toward the self. On the explicit measure nevertheless participants expressed less common humanity toward the self.)

1-Dimentional Copper (II) Molecular Magnets, Location: Hargreaves, 2nd Floor - 5A
Presenters: Travis Emmel
Faculty Mentors: Jamie Manson

Creating materials with tunable magnetic properties is an ongoing challenge especially as new materials for future technologies are rapidly emerging. Part of our materials effort involves the design and synthesis of novel magnets based on molecular building blocks. Along these lines, we have found that control and tenability can be guided by the choice of ligands coordinated to a metal ion in this case copper(II). Chain-like [Cu(pyz)(H2O)2(L)2][ClO4]2 (pyz = pyrazine; L = non-ridging ligand) form polymeric structures wherein the spacing between the chains can be controlled by systematic variation of L. A desirable magnetic property is long-range magnetic order (TN) because the copper(II) magnetic moments will adopt a particular direction in which the electrons will align. The temperature at which this order occurs depends on several factors including the exchange interaction along the chain (J) and between the chains (J'). Accordingly, we have produced several new structures and those results will be presented.

College: CSTEM
Active Restoration Affects Plant Community Composition after Dam Removal, Location: Hargreaves, 2nd Floor - 10C

Presenters: Olivia Morgan  
Faculty Mentors: Rebecca Brown

Aging infrastructure and increased interest in reversing the effects of heavy land use in the United States has motivated attempts to restore riparian areas through techniques like dam removal. However, there is little data on the ecological effects of dam removal and almost no long-term data on the effects of removing dams taller than 5 m. Thus, there have been few opportunities to study the ecological effects of large dam removal. The Elwha River dam removal (Washington, USA) is the largest such project completed to date. Restoration attempts in the drained reservoir beds on the Elwha are an opportunity to study the long-term effects of post-dam removal restoration techniques. Dam removal was completed on the Mills Lake (upstream) reservoir in 2014. I surveyed vascular plant species richness and cover in 60 100m² permanent plots to incorporate active restoration techniques as a variable in a long-term study on the vegetation response to dam removal. Previous surveys in this study only included passively restored (untreated) sites. Treatment plots were taken from a multi-year National Park Service survey. I used ANOVA to examine differences in species richness between three treatments (forbs seeded trees and shrubs planted and forbs seeded or untreated) and landform (valley wall or terrace). Control plots had significantly higher species richness than treatment plots (p<0.04) or seeded plots (p<0.001). Wall plots had significantly higher species richness than terrace plots (p<0.002). I also used nonmetric multidimensional scaling (NMDS) to compare community composition among landforms and treatments. NMDS returned an R value of 0.64 and a stress level of 0.18 indicating that landform and treatment influence the plant community composition. While the differences between treatments four years after dam removal are stark, rapid changes in community composition are common early in succession and may not indicate long-term differences.

College: CSTEM

A Portable Plant Based Renewable Assay for Fatty Acid Methyl Esters Found in Biodiesel Fuels by Gas Chromatography Flame Ionization Detection (GC-FID), Location: Hargreaves, 2nd Floor - Table 17

Presenters: Kayla Macy  
Faculty Mentors: Wes Steiner

With the increased worldwide focus on sustainability in energy production, there has been a recent global effort for the reduction of our dependence on fossil fuels and a commitment to the use of fuels derived from renewable biological sources such as biodiesel produced from plant-based crops. Biodiesel consists of a plant-based renewable fraction of fatty acid methyl esters (FAME) compounds that are produced from vegetable oils such as soybean, rapeseed, palm, coconut, and are then mixed with a fraction of traditional fossil-fuel-based diesel fuel. To this end, this project worked to develop a novel portable plant-based renewable assay to rapidly and reliably monitor the concentration levels of FAME compounds found in complex matrices of biodiesel. The ability to monitor these plant-based renewable FAME concentrations will not only aid in the verification process during either production or distribution but will also help to promote a clean, sustainable working environment for our society.

College: CSTEM

Palletizing and depalletizing processes are important cornerstones of industrial automation. The ability to program robotic vision systems to run these processes is a skill that would set graduating students apart from their peers. The FANUC Delta M3iA/4a robots and RiVision vision software in the Eastern Washington University (EWU) robotics lab are capable of running palletizing and depalletizing programs. In addition, many vision systems in industry are robot mounted and use 2D multi-frame. The vision systems for the robots in the EWU robotics lab are not robot mounted and use 2D fixed-frame. Currently, there is no student manual for implementing either palletizing programs or 2D multi-frame vision on the Delta robots, and so far no student group has managed to learn these processes. To learn how to implement both palletizing and 2D multi-frame vision, a work area will be set up and the robot will be tasked with organizing parts onto a specific pallet and palletizing to a specified height. Two sizes of blocks are sent down a conveyor to an area where the robot uses vision to identify and locate taught parts. The blocks are not ordered, and the spacing between blocks is irregular. Utilizing the camera mounted at the end of the arm, the robot will see the part and identify it. The robot will then pick up the part and move it to the proper pallet to be palletized. The robot then uses the mounted camera to see the pallet and stack the part in the next available open spot. By implementing these processes and writing the user manuals for them, students in the future will be able to learn how to use these programs and be better prepared for careers in automation.

College: CSTEM
Global surface temperatures are rising which has probably increased both the durations and intensities of forest wildfire seasons. Wildfires not only put homes and lands in danger but they also create smoke—a mixture of toxic pollutants that are known to deleteriously affect human health. Of primary concern is particulate matter (PM), a mixture of extremely small particles and liquid droplets suspended in the air. PM2.5 (PM smaller than 2.5 micrometers) particles are small enough to enter the alveoli of the lungs where they can release these pollutants into the bloodstream when carbon dioxide and oxygen exchange takes place. The purpose of this study is to look at the correlation between increased levels of PM2.5 and human respiratory health. Using data from Washington’s Air Monitoring Network, PM2.5 data was obtained for Spokane county during August of 2015 (during a wildfire event) and compared to data for August of 2014 (a control since there were no significant wildfires that month) and analyzed using ANOVA. Hospitalization data from the Spokane Regional Health District using ICD 9 codes for Augusts of 2014 and 2015 was also obtained. Both sets of data were then analyzed to find any correlations between increases of PM2.5 from the wildfires and frequencies of pulmonary related hospitalizations.

College: CSTEM

Elevated levels of lead (Pb) are a common occurrence in soils at shooting ranges as Pb is introduced through ammunition. Pb is toxic to humans with exposure adversely affecting the brain and nervous system and growth and development in children. An EWU trapshooting club is believed to have practiced on the edge of campus. Preliminary research by EWU geochemistry students indicates that the top few centimeters of soil may contain elevated concentrations of lead. To evaluate the amount of lead in these soils from ammunition, I focused on the area assumed to include the trapshooters’ location and trajectories of clay pigeons. This area is currently farmland but part of the proposed EWU Palouse Prairie Restoration site. The top 15 cm of soil was collected in 5 cm increments at 10 sites that form a 10 m x 40 m grid with the two closest sites being 30 m NW of a shed that is designated as the anchor point and leached using 1 M nitric acid. Because lead has low mobility in soils, any lead added to the soil surface typically remains in the upper few centimeters. On average, Pb concentrations did not vary with soil depth indicating that tillage physically mixes the lead. The average Pb concentration increased from 7.5 mg/kg to 15.8 mg/kg with increasing site distance from the trapshooters’ location correlating with trapshooting range design. Sites forming the western edge of the sampling grid had elevated lead concentrations ranging from 8 to 20 mg/kg relative to their eastern equivalents ranging from 7 to 14 mg/kg which suggests that the trapshooting process can introduce varying levels of lead concentrations across a large area. However, the highest Pb concentrations I found at two sites (18 mg/kg and 20 mg/kg respectively) are less than 1/10 the Washington State Department of Ecology limits for unrestricted land use (250 mg/kg) which indicates that these lead concentrations are not considered harmful to humans.

College: CSTEM

This research will focus on rendering a 3D environment from a web browser that updates with data fed from a windmill weather control device. The web-site will be hosted on EWU’s network for the Alternative Energy Engineering Club to view the data for our campus windmill project. The website will be hosted by a Raspberry Pi (powered by the windmill) with Apache HTTP Server and JavaScript will run a WebGL application to display the environment in real-time. This research will demonstrate the convenience of an automated visualization application inside of a web-browser.
Analysis of Arson Debris Using Gas Chromatography-Mass Spectrometry: Vegetable Oils and Fats,
**Location:** Hargreaves, 2nd Floor - 8B

**Presenters:** Shelby Keeley

**Faculty Mentors:** Kenneth Raymond

When it comes to fire debris oils and fats are capable of acting as accelerants and may be present in forensic evidence similar to traditional ignitable liquids. Self-heating oils are especially likely to be found in forensic casework. This research addresses the analysis of such evidence as outlined in the ASTM E2881-13. The first section of this validation was dedicated to method writing and derivatization of positive control samples. The second section dealt with extracting derivatizing and analyzing vegetable oils and fats from debris samples. Various experiments which simulated fire debris evidences were also performed in a controlled laboratory setting to demonstrate that oils and fats can be recovered and analyzed using gas chromatography-mass spectrometry in a reproducible manner.

**College:** CSTEM

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Analyzing Food and Culture, **Location:** Hargreaves, 2nd Floor - 10B

**Presenters:** Antonio Ramirez Ramirez

**Faculty Mentors:** Norma Cardenas

For this student learning project we decided to go to Betz Elementary School and teach the kids how food and culture are intertwined within society. There were around 60 kids in total from the trailblazers after-school program ranging from kindergarten to fifth grade. Every other Thursday we would go to the after-school program and broke the class into two groups-2 grade and 3-5 grade. We let them try salsa with chips during the first visit. The second visit we made tortillas the third visit we made beans and then the fourth visit we made hot chocolate. Finally on family night we combined all the food to make a whole meal. It was important to show them the ingredients and the whole process of making the different foods so we demonstrated the process for them. I collected data by providing the kids an opportunity to reflect and right about their thoughts on the different foods that they tried and the books that we read out loud. Around 95% of all the kids really liked the food and 90% of them asked and got seconds. This experience was so helpful for me because I saw that so many different kids loved most of the foods and were very excited to share their opinions. I am extremely proud of my culture and so many kids wanted recips so we made books that had their names and pictures in them. These books also contained all the recipes that we made and the books that we read during the entire project. Our purpose was to expose these kids to a different culture and food so that they can see how diverse we are as a society and that food is a mixture of cultures as well.

**College:** CSS

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Antimicrobial Susceptibility Testing of Christensenella Minuta an Anaerobic Gram Negative Bacteria that is Present in the Human Gastrointestinal Tract, **Location:** Hargreaves, 2nd Floor - 1B

**Presenters:** Juanita Ferguson

**Faculty Mentors:** Andrea Castillo

Christensenella minuta is an anaerobic rod shaped gram negative bacteria that resides in the human gut. C. minuta has been found to be a hereditable bacteria that is enriched in individuals with a low body mass index and also those with Parkinson's disease. In a recent report C. minuta was found to be associated with a human blood infection. Although support for the clinical relevance of C. minuta is becoming clear some of the basic characterizations such as growth studies and antibiotic susceptibility have yet to be done. Our objectives include establishing a growth rate for C. minuta and determining the minimum inhibitory concentrations for a set of antibiotics commonly effective against anaerobic bacteria. The growth rate for C. minuta cultured under anaerobic conditions at 37°C in brain heart infusion media supplemented with yeast extract, menadione, hemin and L-cysteine was 0.087 OD/hr (N=3). The minimum inhibitory concentrations for the antibiotics metronidazole and ampicillin established using E-test strips were 0.047-0.064 ug/ml (N=2) and 4-16 ug/ml (N=1) respectively. Our preliminary results suggest the doubling time for C. minuta is between 2.2 and 5.7 hours during logarithmic growth and that C. minuta is susceptible to metronidazole. The MIC range we determined for C. minuta to ampicillin spans the susceptible range. Additional experiments are required to more precisely define this MIC. These and our future experiments will promote genetic manipulations studies of C. minuta and inform antibiotic treatment of C. minuta caused human infection.

**College:** CSTEM
Characterization of One-Electron Organoborohydride Oxidation Reactions with NMR, Location: Hargreaves, 2nd Floor - 4B

**Presenters:** Caleb Allen  
**Faculty Mentors:** Eric Abbey

Organoborohydrides are well studied for their ability to donate hydrides and act as reducing agents. Applications ranging from hydrogen storagechemical synthesesand transition metals have been studied. Several borohydride molecules have been synthesized and their oxidation pathways were determined via computational analysis. The results were compared to those obtained with cyclic voltammetry to determine the one electron oxidation potentials. This research aims to characterize the reaction mechanism of one electron oxidation of borohydrides via nuclear magnetic resonance spectroscopy (NMR). The borohydrides are reacted with an oxidizing agentreleasing dihydrogen as a product along with boron containing molecules that are currently being analyzed. A greater understanding of this reaction oxidation will provide insight to the mechanism of both one and two electron release.

**College:** CSTEM

Characterization of the Bioabsorption of Heavy Metals by Spirulina, Location: Hargreaves, 2nd Floor - 15C

**Presenters:** Martina Davis  
**Faculty Mentors:** Tony Masiello

Bioremediation through bioabsorption is an efficient and cost effective means of management of heavy metal contaminants in waste streams that if left untreated would have a negative impact on the environment. The aim of this research is to characterize the ability of cyanobacteriaspecifically spirulina their ability to sequester heavy metals. The ability of infrared and Raman spectroscopy to identify whether the heavy metal has been sequestered will be validatedand the uptake of the heavy metal will be measured utilizing atomic absorption and/or inductively coupled plasma – atomic emission spectroscopy. In additionoptimization of experimental parameters such as contact time and bacterial concentration will be reported.

**College:** CSTEM

Childhood Obesity: National DeclineLocal Crisis, Location: Hargreaves, 2nd Floor - 12C

**Presenters:** Fatimah Alghazwi, Bethany Davidson, Tiffany Van Eaton, Bobby White  
**Faculty Mentors:** Rosalee Allan

Childhood obesity is a large problem for the youth in the United States. Studies have shown that in the past 10 yearschildhood obesity has been on the decline. This has not been true for Spokane County. This project will focus on utilizing secondary research methods to examine the increase in childhood obesity in Spokane County over the last 5 years. A primary focus of this project is to examine what is contributing to the increase of childhood obesity in Spokane County. Another intention of this project is to make formal recommendations that will help aid in the decrease of childhood obesity. One of the main tools used for the secondary research will be Spokane Regional Health District’s report known as “Spokane Counts”. Spokane Counts provides information on public health indicators in Spokane County. From 2012 to 2016 childhood obesity has increased from 24.4% to 26.1% and Washington State has increased from 24.2% to 27.3%.

It is imperative that the root causes of this increase are discovered so that Spokane County can begin to see the childhood obesity numbers begin to decline.

**College:** HSPH

Commodity Trends in Developing Countries, Location: Hargreaves, 2nd Floor - 3C

**Presenters:** Tuan Dang, Vivian Ellis, Jenna Jasa Anh Tran  
**Faculty Mentors:** Dan Li

This research is an educational data mining project aimed to find commodity trends in developing countries. The dataset used contains over 740k rows of commodity prices in developing countries. To supplement this large dataset of food prices The World Bank provided several world development indicators such asrefugee populationfood deficitundernourishmentcereal yieldagricultural landand forest area that we suspect have a high correlation on food prices. Through linear regression we were able to predict the prices over a 10-15 year span for a root mean squared error is 0.079. In additiona program in R was created to find highly correlated world development indicators from country to country. A high correlation is defined by an absolute Pearson's correlation coefficient of at least 0.70. The user will input a country and the output will be a country that shares highly correlated world development indicators. Thought-out testingwe found that developing countries share similar trends in undernourishment and food deficit. Our research has concluded that world development indicators have a strong influence on commodity prices in developing countries.

**College:** CSTEM
Differentiating the two Species of Ticks in the Pacific Northwest through a Statistical Model., Location: Hargreaves, 2nd Floor - 9A

**Presenters:** Nicholas Vanderholm  
**Faculty Mentors:** Krisztian Magori

In the Pacific Northwest there are two native tick species: *Dermacentor andersoni* and *Dermacentor variabilis*. These two species are vectors for various diseases that can be transmitted to both humans and animals. Differentiation of these species is difficult as they are very similar in appearance. Currently the only way to distinguish them relies on an “expert opinion” which can be subjective. A viable statistical model is needed to differentiate these two species. Over the last two and a half months the author and Dr. Krisztian Magori have been collecting and compiling data from the two species in question. The only distinguishing feature of these two species is the shape and texture of the spiracular plates. This research involved using the software ImageJ to take measurements of the spiracular plate of 40 ticks collected at Turnbull National Wildlife Refuge (TNWR) and then compiling and comparing the data. We measured the length and width of the dorsal prolongation of the spiracular plate. These measurements were compared using Ra statistical analysis program. We found a significant difference in the length and width of the dorsal prolongation of the spiracular plate between the two species. Preliminary results show that a statistical model can be created based on these measurements which appears to provide good sensitivity and specificity for differentiation of these two species. The ability to differentiate these two species would be beneficial for both human and animal medicine. Proper differentiation of the two species would also allow us to develop unique ecological models to predict their distribution.

**College:** CSTEM

Educational Oppression’s Effect on Latino Students, Location: Hargreaves, 2nd Floor - 9B

**Presenters:** Tanner Allert  
**Faculty Mentors:** Martín Meráz García

This project involves exploring how Latino Americans have been subject to oppression since their integration into the United States. The goal is to analyze how education has been used as a tool of oppression and the effect this has had on generations of Latino Americans. More specifically, I will be exploring the limited access available for Spanish speaking students. Although there is research stating all ethnicity have equal opportunity in education there is still research demonstrating a gap between Latino Americans and students of Anglo-Saxon decent. My research has utilized Supreme Court cases individual testimony and scholarly articles. Although many believe that the Brown vs The Board of Education Supreme Court case resolved educational inequality several scholarly articles show that there is still much educational oppression presently. Education has been used as a tool to oppress American immigrants and suppress Latino Americans economically while isolating them culturally as well.

**College:** CSS

Effects of Culture Conditions on Poecilia Reticulata Embryo Survival, Location: Hargreaves, 2nd Floor - 3A

**Presenters:** Ian Boals  
**Faculty Mentors:** Charles Herr

Guppies are ooviviparous with an average egg size of 500 micrometers and have a gestation period of 3 weeks. In contrast zebra fish are oviparous with an average egg size of 800 micrometers and a gestation period of just 72 hours. It is assumed that guppies are lecithotrophic meaning they live entirely off the nutrients of their yolk sac but we are suspicious that maternal input occurs because of the long gestation period. Others reported their ability to keep embryos technically alive in culture for up to 29 days but all survivors were seriously abnormal. It is proposed that a key step for survival is the reabsorption of the yolk sac membranes. We conducted experiments to investigate the effects of the gas environment and vertebrate derived supplements on embryos. The first experiment compared gas atmospheres in media supplemented with either rainbow trout oviductal fluid (RTOF) or bovine serum. Embryos were cultured in a medium designed for air atmosphere or ones buffered for a blood-gas mix. Only 4 of 13 embryos under gas mix hatched and the rest failed to survive as functioning embryos although the cells remained associated and alive for weeks. Those cultured under air survived functionally. Experiment 2 studied the effect of supplements under air. The medium without any vertebrate fluid supplement had 4 of 9 embryos hatch and the rest failed to survive in culture more than 7 days. The RTOF medium had 9 of 9 hatch and the serum medium had 7 of 11 hatch. All survived transfer to fresh water. We learned that RTOF could replace serum. This was the first study using RTOF to replace serum. We cultured the embryos until the yolk sacs reabsorbed even though they had hatched several days earlier. This might have solved the problem observed by other researchers.

**College:** CSTEM
Multiple sclerosis is an autoimmune disease that is believed to have genetic and environmental causes. MS is not typically fatal and two phases of the disease occur: An initial acute and remitting stage of the disease that gives rise to a secondary-disabling phase of the disease. The progression of the disease is not well characterized and therefore research is needed to develop more effective therapy. In this study we propose that the progression from the first to second stages of MS is modulated by the gut microbiota. Specifically we propose that gamma aminobutyric acid (GABA) and its metabolism are key mediators of the progression. Earlier data has indicated that gut dysbiosis (characterized by decreased amounts of GABA) is an outcome of an inflammatory immune response of the central nervous system (CNS) that occurs during the progression of MS. Our goal in this study is to create a transgenic strain of Lactococcus lactis that possesses additional copies of the gene gadB that encodes for glutamate acid decarboxylase (GAD). GAD is an enzyme that decarboxylates Glu (amino acid) and produces GABA an inhibitory neurotransmitter. As a result we have been able to clone and isolate the plasmid pBVGh from E. coli EC101 using the restriction enzyme PstI. Identity based on size of pBVGh has been verified by DNA gel electrophoresis. The pBVGh plasmid will be used to insert the additional genetic constructs into L. lactis subsp. lactis IL1403. Cultures and genomic DNA from into L. lactis subsp. lactis IL1403 have been produced and will undergo transformation to insert extra copies of the gadB. The long-term goal of this research is to create a therapeutic probiotic containing a strain of L. lactis that harbors extra copies of the gadB gene and thus can produce elevated amounts of GABA. Creation of such probiotic may have implications for inhibiting the progression of MS from first to second phases.

College: CSTEM
10:15am – 11:30am

P Fourier Transform Visible Spectroscopy Design, Location: Hargreaves, 2nd Floor - 1C

Presenters: John Vant
Faculty Mentors: Anthony Masiello

This research involves designing a Fourier Transform Visible Spectrometer (FT-Vis) based on a Michelson Interferometer design. Our goal is to determine the viability of making a homemade FT-Vis detection system.

The setup of the FT-Vis uses a linear stage from Thor LabsNd:YAG and HeNe Lasers and will grow to include an LED for a broadband light source. All beams in the interferometer follow a collinear path and are separated using a dichroic mirror. As opposed to most Fourier Transform instrument designs whose setups use a separate path for the HeNe to measure the position of the movable mirror the use of the dichroic mirror allows for easier alignment and will facilitate exchange of one of the lasers with the LED.

The data analysis is performed in python. I am currently adapting a Fourier transform signal analysis program written in Matlab by Dong Jin Shin et al (MIT). Adapting the program has required an in-depth study of Fourier Transforms and the optimization of signal analyses.

Going forward we look to determine resolution and detection limit parameters. The possible benefits of a homemade FT-Vis system include the ability to readily modify components and increased resolution when compared to standard methods of obtaining spectra in this region such as a UV-Vis spectrometer. Our hope is to use to be able to use this system in research applications in place of expensive and cumbersome monochromators or expensive adaptations for commercial FTIR. As well as a teaching tool for investigating the absorption spectrum of molecules that absorb in the visible and near-infrared regions such as iodine and methane.

College: CSTEM

10:15am – 11:30am

P Geochemical Characterization of CheneyWA Tap Water through Analysis of Major Ions and Trace Metals, Location: Hargreaves, 2nd Floor - 2C

Presenters: Eric Perry
Faculty Mentors: Carmen Nezat

Buildings built before the 1970’s often contain lead- and copper-bearing plumbing materials which may pose health risks as these metals are leached from the pipes. This indeed has been a problem on EWU’s campus where several buildings with unfiltered taps observed discolored water. Upon observing brown-red tap water specifically in EWU’s Science Buildingour objectives were two-fold: to both sample discolored water throughout older buildings on EWU’s campus and to quantify metal ions building up in drinking water filters over time.

Water was collected from hot water taps from several older buildings on EWU’s Cheney campus and analyzed for iron (Fe), copper (Cu), lead (Pb) and other ions using an Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES). The second part of this study leached metals from used water filters using both nitric acid and water and then analyzed samples with the ICP-OES. Results show the discolored tap water had higher concentrations of FeCu and Pb relative to less turbid water. Cu levels of some samples were over 21x higher (>28 mg/L) than the EPA Action Level of 1.3 mg/L and likewise Pb levels exceeded the EPA Action Level of 0.015 mg/L with some concentrations being over 7x that level (> 0.105 mg/L). These samples remain within the acceptable range of the EPA lead-copper rule because fewer than 10% of randomly collected samples are below the aforementioned action levels. Preliminary results concerning the water filters show that they have successfully removed significant amounts of Cu from drinking water. Due to the serious health risks posed from Cu and Pb ingestion this case study helps demonstrate that discolored water due to pipe corrosion with high Fe concentrations may be strongly correlated with high concentrations of Pb and Cu in older buildings.

College: CSTEM

10:15am – 11:30am

P Gibbs Ensemble Monte Carlo Simulations of Adsorption in Zeolitic Imidazolate Framework Materials, Location: Hargreaves, 2nd Floor - Table 18

Presenters: Gladys Greene
Faculty Mentors: Yao Houndonougbo

Zeolitic imidazolate frameworks(ZIFs) are a subclass of MOFs which are materials that are made by coordinating transition metal ions to organic ligands to form porous network structures. ZIFs consist of transition metal ions (e.g. FeCoCu and Zn) tetrahedrally bonded to imidazolate linkers. Researchers have shown recently that ZIFs are highly porous and have a thermal and chemical stability. Additionally they are non-toxic and easy to prepare with different zeolite topology and linkers. These properties make ZIFs materials interesting candidates for carbon capture and separation. In this work we have considered the zeolitic imidazolate framework 93(ZIF-93) having the zeolite RHO topology. We have performed Gibbs ensemble Monte Carlo simulations to study the equilibrium selectivity for an equimolar mixture of CO2/CH4 in ZIF-93 at 298K and for pressures up to 80 bar. The results of the simulations revealed the role of pressure in the separation performance of ZIF-93. The results also show the preferential adsorption sites of CO2 and CH4 in the material studied. This study improves our understanding of gas separation of porous materials for carbon dioxide capture.

College: CSTEM
Continual technological advancements in enhancing vaping accessibility and experience has fueled the trend in Spokane County leading to an increase in vaping use among young adults between the age of 15 to 25 years old. Originally marketed as a healthy alternative to traditional tobacco use, vaping has attracted the attention of pre-existing tobacco users as well as young adults. The vaping trend targeting this new market by promoting its use as a social trend and providing many different flavors of tobacco to appeal to those who dislike the traditional taste of tobacco. This project will examine the growth of popularity in vaping use among young adults between the age of 15 to 25 in Spokane County; and the growing health concerns by local and federal health officials and organizations. In order to validate these health concerns research will be conducted regarding the biological effect vaping has towards the health of young adults and demographic understanding of the increase in vaping use. Investigated research will also incorporate the developmental track of vaping technology; such as the JUUL and its resulting effect on the increase of young adult usage. The results will help confirm the concerns that Spokane County health officials have made public and support any legislative proposals set forth to acknowledge and preserve the health and safety of the younger population.

College: CHSPH

Federal agencies use the Standard Occupational Classification (SOC) system which is a federal statistical standard; to place laborers into classifications for data collection and calculation purposes. As of 2018 there are 867 detailed occupational classifications further consolidated into broader groups based on skill sets, education, and duties. Each occupation is identified in the system by a numerical code indicating its classification. However, not all employers will report their occupations using the correct Standard Occupational Classification codes. This study will examine the top ten nursing home chains in the United States and determine whether or not they report the correct Standard Occupational Classification codes for the Therapeutic Recreational Therapists they employ. This study will also explore a common issue in the therapeutic recreational therapist profession where individuals who identify as activity directors are often being mistaken for individuals who are certified therapeutic recreational therapist due to an issue with incorrect coding.

College: HSPH

It is evident that a country is able to maintain a universal healthcare model; ensuring citizens can receive quality care regardless of the person’s ethnicity, income, disability etc. Switzerland is a prime example of an all-inclusive healthcare structure. In comparison to the United States which favors a market-based health insurance system, ultimately deprives people from desperate services such as mental health counseling. These disproportions services directly affect communities with little resources and those with a disadvantage including those living in poverty and people of color. However, there are still barriers to accessing care that affect everyone. For instance, the burden of debt associated with medical cost when receiving treatment as well as the shortage of specialty doctors and primary care providers affect those even with or without insurance. Approximately 32 million people in the United States are without health insurance; resulting in 101,000 deaths every year – simply because of how the United States organizes its healthcare system. This health care crisis is the outcome of not only privatizing health insurance companies but also making a commodity out of patients for profit. Even though the U.S. spends twice as much per capita on healthcare compared to Switzerland; Switzerland has lower rates of depression, drug abuse, and obesity concluding a higher rate of life expectancy. Providing universal health care similar to Switzerland’s only one strategy the United States could implement. Throughout this research paper, several approaches will be discussed to analyze how they can improve the quality of mental healthcare in the United States.

Keywords: mental health, improving access

College: CHSPH
Improving Honey Bee Colony Health: Assessing the Role of Honey Bee Gut Microbiota in Mediating Pesticide Effects, Location: Hargreaves, 2nd Floor - 6C

Presenters: Shelby Fettig
Faculty Mentors: Jenifer Walke

Honeybees (Apis mellifera) are a major pollinator of important food crops but unfortunately population declines are threatening global food security and ecosystem health. Honeybees are under several stressors such as weather changes, parasitic mites, pesticide side effects of antibiotics and pathogens. Similar to human health, the gut microbiome of the honeybee is hypothesized to affect the bee’s overall health. However it is not clear how these stressors affect the gut microbiome and thus the health of honeybees. This study treated hives with four suspected stressors (Tau-fluvalinate (miticide), chlorothalonil (fungicide), terramycin (antibiotic), and imidacloprid (insecticide)), along with a combination of chlorothalonil and commercial honeybee probiotic bacteria mixture to observe changes in microbial species composition. Overall abundance and functionality of the honeybee gut microbiome. There were significant changes in these categories between the two timepoints (before/after treatment). Although treatment did not significantly affect overall microbiome composition, some treatments resulted in changes in parasitic mite counts, total bacterial abundance, and relative abundances of particular bacterial taxa. The results suggest the honeybee gut microbiome can be affected by chemical stressors commonly encountered by honeybees and these changes may impact bee health. Furthermore, the data gave insight on timing and treatments for future studies.

College: CSTEM

Isolation and Identification of Residential Bacteria within the Gut of the North American Honey Bee Apis mellifera, Location: Hargreaves, 2nd Floor - 7A

Presenters: Erin Ford
Faculty Mentors: Jenifer Walke

Pollination is the keystone of plant reproduction vital for food crops and natural ecosystems. Due to widespread agricultural practices including pesticide use and monoculture, insect pollinators such as bees are experiencing devastating population declines worldwide. Bacteria are known to play important roles in digestion, nutrient acquisition, and immunomodulation in humans and are hypothesized to have similar roles in other organisms including bees. This research aims to isolate and identify resident bacteria within the gut of the Honey Bee Apis mellifera as well as to determine their role in overall honeybee health. In the experiment, bacteria were isolated from the gut and identified using 16S rRNA gene sequencing. Eighty-eight bacterial isolates were identified, yielding six of the eight major bacteria groups within the gut, including members of the genera Bartonella, Snodgrassella, Gilliamella, Bifidobacterium, and Lactobacillus. Furthermore, different gut regions harbored different bacteria. Future research involves performing functional analyses of the honeybee gut microbiome to determine the role of these bacterial groups in honeybee health as well as developing probiotics that can be used to mitigate the devastating effects of disease, pesticide use, and monoculture on these vitally important members of our ecosystems.

College: CSTEM

Isolation of Osteoclast Sublines from RAW 264.7 Cells., Location: Hargreaves, 2nd Floor - 5C

Presenters: Martina Davis, James Giireath
Faculty Mentors: Jason Ashley

To better understand molecular mechanisms of osteoclast differentiation, reliable tools are necessary. RAW 264.7 is a macrophage-like cell line derived from an Abelson murine leukemia virus-induced tumor that is unique in that it is the only cell line that can be differentiated into osteoclasts. Being derived from a cancer means that these cells are functionally immortal—an entire population can be recapitulated from a single cell. This is particularly useful when working with complex gene editing workflows. RAW 264.7 is a heterogeneous population; however, not all subpopulations differentiate into osteoclasts equally. To prevent founder effects following genetic manipulation and to limit genetic drift, we seek to isolate a clonal population of RAW 264.7 subclones with consistent osteoclast differentiation potential. Isolation of individual clonal populations was accomplished via serial dilution; parental RAW 264.7 cells were diluted to a density of 5 cells/mL, and 0.2 mL of this suspension were added to each well of a 24-well plate. Cells from wells containing single colonies were expanded and cryopreserved for further analysis. Each subline will be assessed for its ability to differentiate into osteoclasts as determined by size and number of resultant osteoclasts. To determine osteoclast-specific genes. The goal is to establish a line of RAW 264.7 cells that can be predictable in differentiation to osteoclast lineage for use in future gene editing studies.

College: CSTEM
10:15am – 11:30am

**P Long Term Care Administrator Job Openings in Washington State Compared to Nationwide, Location:** Hargreaves, 2nd Floor - 12A

*Presenters: Taylor Bauernfeind, Abbie Hamilton, Darin Mohabet, James Weinand*

*Faculty Mentors: Rosalee Allan*

Our research project focuses on the administrator job openings in long term care around Washington and nationwide. Specifically: Washington State, Arizona, and Virginia. Arizona and Virginia are states with similar populations to Washington. This project will be researching salaries, education, cost of living, and long term care facilities to see how they compare to each other. Long term care facilities are focused on providing ongoing medical and personal care around-the-clock for patients who are unable to live independently in their community. Long term care facility administrators are highly trained leaders who oversee the operations of nursing homes, assisted living facilities, or rehabilitation centers. In order to be an administrator at a long-term care facility, a Bachelor’s degree is required and in most states, a Master’s degree is preferred but not needed. With most long term care facilities, you are also required to have a license in Nursing Home Administration to run a facility. Research shows that an estimated 70 percent of people currently turning 65 will require long term care in their lifetime. By 2030, the older population will increase dramatically in the period from 2010 to 2030. With the older population projected to increase by double, this will increase job openings for long term care facility administrators.

*College: CBPA*

10:15am – 11:30am

**P Manufacturing Technology, Location: Hargreaves, 2nd Floor - 15B**

*Presenters: Abdullah Almarzooq*

*Faculty Mentors: Terence Geyer*

*good*

*College: CSTEM*

10:15am – 11:30am

**P Potential Changes to Turnbull National Wildlife Refuge Ponds Driven by an Exotic Fish Invasion, Location:** Hargreaves, 2nd Floor - 11C

*Presenters: Edward Hue*

*Faculty Mentors: Ross Black*

The purpose of this work was to investigate potential effects of brook stickleback (Culaea inconstans) on aquatic communities in eastern Washington. Brook stickleback, which are indigenous to drainages east of the continental divide and central North America, have been documented within drainages on the western slope of the Rocky Mountains. Since 1999, brook stickleback have repeatedly been observed within creeks and ponds of the Rock Creek Drainage, which is a tributary of the Palouse River and ultimately the lower Snake River, Washington. Included within their newly adopted eastern Washington distribution are several lotic and lentic environments within the Turnbull National Wildlife Refuge (TNWR) which poses potential complications for waterfowl management due to diet overlap. We created 32 pond communities, each in a 350 liter stock tank, added stickleback at one of four abundances (none, two, four, or eight individual stickleback per tank), then monitored the abundance and size of invertebrates, phytoplankton biomass, and nutrient concentrations over a six-week period during the summer of 2017. Results and conclusions will be presented at the meeting.

*College: CSTEM*

10:15am – 11:30am

**P Preliminary Stability Measurements of Clinically Relevant ITPase Mutants, Location:** Hargreaves, 2nd Floor - 10A

*Presenters: Ai Ngo*

*Faculty Mentors: Nicholas Burgis*

Inosine triphosphate pyrophosphohydrolase (ITPA) participates in detoxifying damaged nucleotides, preventing them from integrating into nucleic acids, protecting our DNA. Therefore, alteration of the ITPA gene makes nucleic acids more vulnerable to environment. As previous research has shown, the R178C and P32T mutants produce a protein with reduced ITPA activity. The P32T polymorphism distorts the loop and changes properties of catalytic site, making it less efficient for catalytic activity. The R178C ITPA mutation leads to severe loss of enzyme activity, disease including infantile encephalopathy, and the P32T mutation causes adverse drug reactions in patients treated with thiopurines such as Azathioprine. Developed from that, the purpose of this research was to preliminarily assess stability measurement of relevant ITPA mutants using a fluorescence method. The method was based on principle of intrinsic fluorescence property of tryptophan and changes in fluorescence when proteins unfolds. The protein was gradually denatured with increasing concentrations of Urea. Tryptophan, which normally located within the protein core, is partially exposed to solvent when protein is unfolded. Quantum yields (emitted/excited photons) of the fluorescence signals is optimally quantized at wavelength of 280 nm. Relating fluorescence signals differences between relevant mutants and wild type (WT) enable us to compare their stability.

*College: CSTEM*
Sexually Divergent Expression of TLRs Suggests Increased Susceptibility to Inflammatory Signaling in Female Osteoclasts

**Presenters:** Abigail Keever, Nolan Newman  
**Faculty Mentors:** Jason Ashley

Osteoporosis is a degenerative bone disease that predominantly affects post-menopausal women. The gradual loss of bone reflects excessive osteoclast activity which results in increased fragility and risk of fracture. Estrogen functions as an endogenous inhibitor of osteoclast differentiation and function; thus its decline in aging women is partially to blame for osteoclast dysregulation. In prior studies, male and female osteoclasts have shown retained differences in resorption and differentiation when grown ex vivo. Whether sex-specific osteoclast behaviors are due to durable effects of estrogen or sex chromosome composition is unknown. To further investigate this, we isolated osteoclast precursors from the bone marrow of male and female mice to assess differential gene expression by RNA sequencing. Two comparisons were made: differential gene expression based on differentiation state (macrophages vs osteoclasts) and differential gene expression based on sex. Pathway analysis and subsequent validation by qPCR revealed significant differences in Toll-Like Receptor (TLR) expression between male and female osteoclasts.

Variance in TLR expression suggests variance in susceptibility to pathogen-induced inflammatory signaling. This is of interest because inflammatory signaling has been shown to enhance osteoclast differentiation and activity following commitment with RANK signaling. From this, we tested sensitivity to inflammatory signaling between sex using ultra pure lipopolysaccharide (LPS) as an activator of TLR4. We found that pre-committed female osteoclasts were more sensitive to LPS signaling by forming more and larger osteoclasts relative to males. Our findings suggest that females may be at greater risk for infection-related bone loss due to elevated expression of pro-inflammatory receptors. A greater understanding of these and other sexually divergent signaling pathways may lead to better therapeutic targets for osteoporosis and other bone loss disorders.

*College:* CSTEM

Skilled Nursing Facility Inspection Findings from 2015-2017

**Presenters:** Rabab Alnakhli, Sarah Deckard, Halah Othman, Ashley Smith  
**Faculty Mentors:** Rosalee Allan

This project focuses on examining inspection findings of skilled nursing facilities in the United States from 2015 – 2017. A skilled nursing facility commonly known as a nursing home is a healthcare institution that provides the availability of nursing care 24 hours a day to help individuals with whatever needs they may have. Skilled nursing facilities are required by law to be examined yearly through a routine inspection that evaluates the quality of care and services provided as well as the facilities' buildings, equipment, staffing, policies, and procedures. This study addresses the changes in inspection outcomes occurring in skilled nursing facilities over a three-year span from 2015-2017. Possible causes for these changes including higher standards for quality measures and new quality measures are identified in this study as reasons why there is a change in inspection findings as well as the most common inspection violations across the nation. The ultimate goal of this research project is to understand what the changes are in skilled nursing home facilities and why as well as the ratings from a nationwide perspective.

*College:* CHSPH

Soil Food Webs of Riparian Forest Soils on the Olympic Peninsula

**Presenters:** Wendal Kane  
**Faculty Mentors:** Justin Bastow

The soil food web is an essential component of ecosystem function as it plays a pivotal role in decomposition and nutrient cycling. Despite their importance, riparian soil food webs are understudied compared to other systems such as forests and grasslands. The aim of this study was to characterize the riparian soil community of three tributaries of the Elwha River. These tributaries were chosen as part of a larger project concerning the return of marine derived nutrient via anadromous fish in response to dam removal and represent the lower/middle/upper Elwha. To assess how the soil food web differs between riparian areas and adjacent upland sites, we sampled soil from ten *Acer macrophyllum* (maple) tree stands along each tributary. Five stands were located at the stream edge and five were in the upland greater than 25m from the stream edge. We also sampled soil from five *Alnus rubra* (alder) tree stands at the stream edge to assess how the presence of a nitrogen fixing plant would influence the soil food web. Nematodes are often used as surrogates for the soil food web because they occupy many trophic levels including herbivore, fungivore, bacterivore, omnivore, and predator. Nematodes were extracted from soil samples via Baermann funnels and identified to their functional feeding group. We did not detect any difference in total nematode abundance between the three tributaries or the three stand types. However, streamside *A. rubra* stands had more predatory nematodes (0.269 ± 0.064 individuals per gram of soil < 0.01) than streamside and upland *A. macrophyllum* stands (0.087 ± 0.021 and 0.086 ± 0.015, respectively). *Alnus rubra* stands also tended to have more omnivorous nematodes (0.738 ± 0.138p = 0.068). This data suggests that *A. rubra* supports a more complex soil food web. Data analysis of other soil characteristics including soil textures, soil carbon, and soil nitrogen is ongoing.

*College:* CSTEM
Staff Retention in Long Term Care, Location: Hargreaves, 2nd Floor - 14C

Presenters: Danny Beaudry, Hannah Cain, Kade Senter, Sameera Villaluz
Faculty Mentors: Rosalee Allan

Long-term care organizations around the nation are experiencing various levels of staff shortages primarily among Registered Nurses (RNs) and Certified Nursing Assistants (CNAs). Long Term Care facilities provide services to over 4 million Americans each year (CDC2017). This study will focus on research and data that focuses on the retention of employees in Long Term Care facilities. Retention of employees in long term care has been a challenge that is well documented and acknowledged. In 2012 the American Healthcare Association had a staffing report which showed the turnover in nursing facilities to be 43.9 percent which is an increase from 2009 of 3.9 percent. The national average for turnover in the healthcare industry is about 29.9 percent. The difference is a staggering 14.3 percent. The cost of employee turnover can be detrimental to the field. On average the cost of turnover is about 20 percent of the employee’s annual salary. With yearly salaries ranging from $25,000-$70,000. Facilities lose thousands of dollars from hiring and training employees that could otherwise be allocated for patient care and facility upkeep. We expect our research to give healthcare administrators better understandings as to why turnover in long-term care is so high and how they can improve job retention in this field.

College: CHSPH

Synthesis of Benzodiazaborole Derivatives, Location: Hargreaves, 2nd Floor - 2A

Presenters: Dillon Puhl
Faculty Mentors: Ashley Lamm

Indole is a very common molecule that is found in compounds such as the amino acid tryptophan. B-N bonds can take the place of Carbon-Carbon (C=C) double bonds since they both have the same number of electrons and boron’s empty P orbital allow for a pseudo double bond between it and nitrogen. By changing the C=C bond in Indole for a B-N bond the polarity changes allowing the Indole mimics benzodiazaborole to readily undergo Nucleophilic Aromatic Substitution (SNAr) which indole does not undergo. Our goal is to synthesize derivatives of benzodiazaborole using SNAr reactions. Using air-free synthetic organic techniques we have created benzodiazaborole derivatives. The reaction conditions results and future directions will be discussed.

College: CSTEM

Synthesis of New Linker Molecules for Covalent Attachment of Fullerene to Graphene for Supercapacitor Applications, Location: Hargreaves, 2nd Floor - 4C

Presenters: Jessica Demyen
Faculty Mentors: Eric Abbey

With the increase of clean energy production through wind turbines and solar panels new ways to effectively and efficiently store energy are necessary. Currently there are two main storage methods: batteries and capacitors with batteries being the most commonly used. Batteries work well for short term storage but have low life spans and start to lose their charge once removed from a charging source. The most efficient capacitorsuper capacitors are composed of a single-atom-thick layer of sp2 carbon atoms densely packed into a two-dimensional honeycomb lattice. They have a high power density and long life span but their low energy density limits their capacity to do work. To increase the energy density of super capacitorsurface area needs to be increased which can be done by covalently attaching fullerene molecules (C60 spherical structure) to the graphene sheets. The purpose of this research is to synthesize a family of organic linker molecules to covalently attach fullerene to graphene to increase supercapacitor energy density and make them tunable for specific needs.

College: CSTEM

The Benefits of End of Life Comfort Care, Location: Hargreaves, 2nd Floor, TBA

Presenters: Fatimah Alsaif, Darby Evans, Alexis Garcia, Dion Moses, Alan Rivas-Parra
Faculty Mentors: Rosalee Allan

Hospice programs have grown substantially in Spokane County area. Through Hospice programs patients with long-term terminal illnesses can receive comfort and around the clock care that most hospitals are hesitant to provide due to low compensation from government insurance plans. Hospitals were made for acute illnesses not long term or terminally ill patients. Caring for someone with a terminal illness can be hard physicallyemotionally and timely for family and friends that is where hospice programs can help. Hospice programs not only offer support to the patient but also to the patient’s families as well. Many Hospice programs provide free counselingtake many different insurance plans or payment plans and provide stability in care for patient’s families in the hardest situation of life. Research will be conducted as to why the number of terminal ill patients has increased in this time period if patients are seeking out Hospice programs more than before due to the benefitor if Hospice programs are growing due to insurance. The hope is to inform the community of Spokane County about the benefits and growth of Hospice programs in the immediate area.

College: CHSPH
P The Causes of Underrepresentation of Latin@s in computer science and STEM fields, Location: Hargreaves, 2nd Floor - 9C
Presenters: Casey Cahill
Faculty Mentors: Martín Meráz Garcia
The purpose for writing this research paper is to inform readers and give them a new perspective on the low population of Latin@s in the fields of computer science and STEM (science, technology, engineering, math) work fields. This research project shows the underrepresentation of Latin@s in high tech jobs and some of the possible causes behind this. This paper will look toward the statistics showing that there is an absence of Latin@s in computer science and STEM across the nation and through those statistics attempt to give the reader a comprehensive understanding of the current situation in the computer science and STEM workforces involving Latin@s in the United States. Most of the information used was found in peer reviewed scholarly journals and information from the US American Community Survey. The timeframe of data used in this research paper and any information used was restricted to all findings after the year 2000.
College: CSTEM

P The Development of Breast Cancer Screenings Over The Years, Location: Hargreaves, 2nd Floor - 14B
Presenters: Noor Alzid, Christian Rinehart, Phynesse Sanford, Alex Schutt
Faculty Mentors: Rosalee Allan
Breast cancer like any cancer is dangerous when left unchecked. Organizations including The Healthy People have set goals regarding its survival rate. The goal as of 2010 is to reach a 70% survival rate for detection. This project is going to evaluate whether this goal has been met and discover if screening rates have improved in the past 2 years. Regular screening over the age of forty is a wonderful way to increase the survival rate of this cancer as it catches it early. Breast cancer is detectable through two major methods. The first is regular self-exams recommended monthly for women age 20 and up. Secondly, mammograms are recommended annually for women 40 and up. Regular mammograms are incredibly important as by the time a lump is noticed in the self-exam, cancer has spread to the nearby lymph nodes and from there it can move to the bones, lungs, and skin. It is important to increase the screening rates as catching cancer early will improve the survival rate significantly.
College: CHSPH

P The Effects of Modified Fucose on Osteoclast Differentiation, Location: Hargreaves, 2nd Floor - 5B
Presenters: Acacia England
Faculty Mentors: Jason Ashley
Osteoclasts are large, multi-nucleated bone cells responsible for digestion of damaged or under-utilized bone matrix. Proper functioning of osteoclasts is important for normal bone physiology. However, excessive osteoclast activity can lead to bone loss. Better understanding of the mechanisms behind osteoclast function will be essential for developing future therapies against bone loss. Osteoclasts are formed via the fusion of neighboring macrophage-like precursor cells. Our group and others have observed that patterns of glycosylation—the decoration of proteins with different sugar molecules—change during the osteoclast differentiation process. However, the significance of these changes is poorly understood. The purpose of my research is to investigate whether modification of proteins with fucose sugar is required for normal osteoclast differentiation. To do this, I will block fucose incorporation through the treatment of osteoclast precursors with a modified form of fucose called pNP-fucose. I will first determine the appropriate dose of pNP-fucose to add to these cells—enough to influence the macrophage’s differentiation but not enough to kill the cells or trigger their immune responses. I will measure the response with a quantitative analysis of osteoclast maturation via determination of size and number of mature osteoclasts and also by quantifying marker genes produced by mature osteoclasts. These analyses will determine whether fucose modification of osteoclast precursor proteins is necessary for normal differentiation. This research will be foundational for better understanding of molecular interactions that govern the differentiation and function of osteoclasts.
College: CSTEM
The Importance of Infectious Diseases in Cetacean Strandings, Location: Hargreaves, 2nd Floor - 8C

Presenters: Jordan Barland
Faculty Mentors: Krisztian Magori

Infectious diseases need to be considered when developing plans for the worldwide conservation of cetaceans. More and more articles are being published about cetacean deaths all over the world as well as how those deaths impact entire populations. The issue of what is killing these cetaceans has yet to be fully understood but that is not to say that all of the cetacean deaths are caused by exactly the same thing. Most of the scholarly articles published include general hypotheses developed from necropsies done on the carcasses. These case studies rarely name specific infectious diseases; they only hypothesize that there must be some form of infectious disease at work. We conducted a systematic review of the literature on infectious diseases in cetaceans. More specifically, we looked at the importance of infectious diseases as the primary diagnosis of stranded cetaceans in different parts of the world. Preliminary results show that infectious diseases are an important contributor to cetacean mortality. Although pathologies are helpful in establishing how a cetacean died, there is a limited amount of literature detailing how to prevent similar deaths in the future. Conservation methods could benefit from further investigation into what actions to take to counteract these diseases.

College: CSTEM

The Influence of Molecular Motions on Substrate Binding in Mutated Inosine Triphosphatase: Computer Simulations, Location: Hargreaves, 2nd Floor - Table 19

Presenters: Samuel Hatfield
Faculty Mentors: Yao Houndonougbo

Inosine Triphosphatase (ITPA) catalyzes the hydrolysis of (deoxy)Inosine Triphosphate ((d)ITP) and (deoxy)xanthosine triphosphate ((d)XTP) into monophosphate. The excess of (d)ITP and (d)XTP may cause the adverse substitution of nucleotides in nucleic acids and genetic disorders. The ITPA enzyme is a 194-amino acid homodimer of which each chain has a central beta sheet with two terminal globular lobes that have alpha/beta structural characteristics and a central cation—presumably Mg2+. The ITP molecule binds between the two lobes and the substrate binding causes an overall closure of the binding cleft by 25°. So far, ITPA has mostly been the object of experimental studies. We have carried out Molecular Dynamics simulations of Mutated human ITPA complexed with the ITP substrate in explicit aqueous solution. The CHARMM version 36 all-atom force fields and the GROMACS program were used to perform both equilibration and the trajectories generation. Here in this study, we report the hydrogen bonding and the principal component analysis that reveals the effect of binding on molecular motions of the Mutated ITPA. The results of our study give the microscopic characteristics of Mutated ITPA dynamics that may be difficult to obtain in experimental studies.

College: CSTEM

The Relationship Between Patterns Dentition to Body Size and Premolar Size and to Diet in Extinct and Extant Species of Kangaroo, Location: Hargreaves, 2nd Floor - 7C

Presenters: Sarah Kangere, Emily Spencer
Faculty Mentors: Judd Case

This study explores the relations in multiple species of kangaroo the patterns of dentition including premolar size and shape to that of body size and diet. Both fossil species and modern species are part of the data set for analysis of the evolutionary process over time. Each species was categorized into their specific macropodid groups; Group 1-Great Kangaroos; Group 2-Large Wallabies; Group 3-Pademelons and Small Wallabies; Group 4-Quakkas; Group 5-Nail-Tailed Wallabies; Group 6-Hare Wallabies; Group 7-Rock Wallabies; Group 8-Tree-Kangaroos; Group 9-Rat Kangaroos and Group 10 which was designated to fossil species. Measurements were made based on premolar shapemolar row lengthjaw lengthdiastema length and incisor length. These measurements were analyzed through regression testing and correlated to body size proxies of jaw length and molar row length. The regression analyses indicated that premolar shape (length and width) are related to diet and do not scale with body size of the kangaroo. Whereas molar row length is highly correlated to body size based on jaw length and not to diet. Surprisingly, incisor length and diastema length correlated to body size and not diet. This suggests that while being important anatomical structures to the jaw function, these kangaroo species do not depend on their molar areadiastema length and incisor size for differing feeding strategies differing from premolar shape which seems to be indicative of different feeding niches amongst kangaroos.

College: CSTEM
10:15am – 11:30am

**Unconfined Strength Test of Latah Creek Soils, Location: Hargreaves, 2nd Floor - 11B**

*Presenters: Nick Buechler, Joe Nunley*
*Faculty Mentors: Richard Orndorff*

We collected soil from Campion Park in Spokane, WA to perform an unconfined compressive strength test according to ASTM standard D-2166. Campion Park is located on an active floodplain of Latah Creek that shows recent signs of flooding through vegetation behavior and fine sediment deposits. According to the Unified Soil Classification System, our soil sample is a sandy silt with 30 percent being classified as fine material and 70 percent as sand. The Unconfined Compressive Strength test allowed us to determine strain behavior of soil from applied compressive stress and identifies yield strength and ultimate strength. We explored the impact of compactive effort on compressive strength of the Latah Creek soils and our results indicate that strength increases with increased compaction effort.

*College: CSTEM*

10:15am – 11:30am

**Will Large Dam Removal Restore Native Plant Diversity? Trends on the Elwha River, Location: Hargreaves, 2nd Floor - 11A**

*Presenters: Cody Thomas*
*Faculty Mentors: Rebecca Brown*

By altering flood regimes, seed dispersal, and sediment erosion and deposition, large dams have been shown to reduce downstream plant diversity and increase the number of nonnative species present. Dam removal could potentially reverse these effects but there have been few studies documenting changes to plant communities following large dam removal. The Elwha River in Washington, the site of the largest dam removals to date, provides a unique opportunity to observe the effects of dams and dam removal on riparian vegetation. The objective of our study was to determine whether dam removal restores downstream diversity. To address this question, we surveyed vascular plant species composition and cover at a total of 75 100 m² plots located above, below, and between the dams. Plots were randomly stratified across landforms and sampled twice before (in 2005 and 2010) and four times after (in 2013, 2014, 2016, and 2017) dam removal. We found that there was an overall increase in native species across all river sections and landforms following dam removal (p < 0.01). However, the interaction between year and river section was not significant (p = 0.07), suggesting that diversity below the dams has not significantly increased. The large influx of sediment into the system following dam removal may be affecting natural recovery and we predict that with more time, species richness will increase to reference levels.

*College: CSTEM*

10:15am – 11:30am

**Will Quality of Care for Patients be Affected within Long Term Care by High Turnover?, Location: Hargreaves, 2nd Floor - 13B**

*Presenters: Ghyda Alhazmi, Madison Pacheco, Abdulaziz Roziq, Shelby Slaughter*
*Faculty Mentors: Rosalee Allan*

High turnover rates affect not only the quality of care for patients in long term care facilities but also costs to facilities and job satisfaction for employees. Turnover rates will be compared for registered nurses and certified nursing assistants nationwide and on a smaller scale in Washington state. Different factors contribute to a high or low turnover rate. Factors can include but are not limited to economic, demographic, and social contributors. Additionally, research will conducted on retention of current nursing staff and what long term care facilities are doing to retain employees. This may include employee motivations and satisfaction with their work and within the work environment. Turnover affects all parts of healthcare from cost quality of care and job satisfaction.

*College: CHSPH*

10:15am – 11:30pm

**Sleep Patterns Among EWU Students, Location: Hargreaves, 2nd Floor - 7B**

*Presenters: Kirsha Johnson*
*Faculty Mentors: Theresa Martin*

The current study seeks to describe the sleep patterns and sleep experiences of EWU students building off the study completed over Winter quarter for PSYC 313. This study described the sleep patterns of EWU students and had a nonsignificant finding associating personality with sleep. The initial results suggested there was a significant disruption of sleep patterns among the participants. This study included 90 participants: 78 were female and 12 were male. Between the ages of 18 and 40, half of the ages were 20-22. A majority of 76 identified as white and 10 as Hispanic. About two thirds (57) of the participants woke up during the night several days a week and 61 participants woke up 1-2 times during these nights. Additional questions were added to initial survey for the current study and we will be reviewing more participants at the time of the symposium.

*College: CSS*
Adopting the Health Beliefs Model to Examine Attitudes and Beliefs About Noise-Induced Hearing Loss Among Spokane Residents, Location: Senior Hall, 2nd Floor Lounge

Presenters: Daniel Morales
Faculty Mentors: Patricia Richards, Anna Tresidder

Introduction: The Department of Veteran Affairs (DVA) estimated that 31 million Americans suffer hearing loss exceeding one billion dollars in federal compensation annually (Wells2015). The DVA (2005) also estimated that hearing loss affects all age groupsetnicities and genders. Keppler (2015) concluded that hearing conservation programs encounter resistance that ultimately increases the prevalence of Noise-Induced Hearing Loss (NIHL). In a recreational noise studythe Noise Navigator Sound Levels Database (2015) supported that Americans frequently encountered harmful noise including extended durations of exposure most commonly associated with recreational noise. Despite the chronic implications of NIHLhearing conservation programs continue to have little success.

Methods: A quasi-experimental design a questionnaire was designed to evaluate the status of attitudes and beliefs about Noise-Induced Hearing Loss among Spokane residents. The questionnaire will created through Survey Monkey and include 25 questions. SPSS will be used to perform Multiple Regression Analysis. Convenience sampling was used to identify subjects for participation. Participants will have the option to complete the questionnaire in-person or kiosk modeby emailmobile link or QR code. The Health Belief’s Model framework will provide categories for analysis. The categories will include personal vulnerabilityperceived benefitsperceived barriers and cues to action. Results: To be determined. Conclusion: To be determined

College: CHSPH

Decolonizing Aging Research in Diverse Communities, Location: Senior Hall, 2nd Floor Lounge

Presenters: Luella Loudenback

At the 2018 Aging in America Conference in San Franciscothere was a resounding call for more research. The call for more researchrelated to aging in the United Statesaging in diversity and care-givingabuse and exploitationpoverty and food security. This poster board will identify some of the barriers to doing research in diverse populationsfamilies and communities. Discuss the implications for social work at the micromezzo and macro levels of practice and offer culturally sensitive recommendations for continuing to do research with various communities to enhance equity and continue ongoing efforts towards social justice.

College: CSS

Efforts to Reduce Social Isolation Among Older Adults, Location: Senior Hall, 2nd Floor Lounge

Presenters: Kendra O’Halloran
Faculty Mentors: Sharon Bowland

This poster will provide information about social isolation among older adults; the definitionprecipitating factorsoutcomes and proposed interventions. There are many catalysts leading to social isolationincluding inadequate transportationinaccessible community spacesfear of fallinggeographically disbursed families and stigma associated with asking for support. Social isolation isn’t limited to those living aloneeven someone in a house full of people can suffer. No matter why it beganwho it is affectingssocial isolation has detrimental impacts on health. Research has shown that the severity of health outcomes caused by social isolation are worse than obesity and equivalent to smoking 15 cigarettes a daywhich is ¾ of a pack. They are also at higher risk for depression and a 64% higher risk of developing dementia. There have been many attempts to address and alleviate this social crisismany with promising results. There are direct interventionswhich address the immediate needs of individuals and systemic interventionswhich seek to prevent social isolation. Direct interventions include; social technology“home mates”and intergenerational connection. Systemic interventions include; visitability ordinancesage-friendly communitiesage positivity and adequate transportation.

College: CSS
10:30am – 4:00pm

**End of life: Honor Diversity Ambiguous Loss and Spiritual Differences, Location: Senior Hall, 2nd Floor Lounge**

*Presenters: Kaylee Spangenberg*

*Faculty Mentors: Sharon Bowland*

All religions share human mortality and as we age we come ever closer to that inevitability. Medical professions are becoming more culturally humble instead of seeing themselves as culturally competent which is allowing for better feedback from families at end-of-life care. There is still a great need to understand disenfranchised grief and to understand that there is no quick fix for grieving. In order to help families and older adults who experience an ambiguous loss we can help them name the loss and emotions that they are experiencing. By emphasizing resilience and hope you can also help them focus on their strengths while they may be experiencing grief overload. If we can step away and understand that spiritual wellness is an important aspect of healing and see that questioning does not make a person weak in their faith we will be able to help further our own knowledge and growth as well as help patients/clients by not being judgmental and by not making them feel isolated. The one thing we need to know when dealing with those who have lost someone or are losing someone is that it is a life-altering event and every culture approaches the subject of death differently.

**College: CSS**

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10:30am – 4:00pm

**Long-Term Care Facilities and LGBTQ Older Adults, Location: Senior Hall, 2nd Floor Lounge**

*Presenters: Mariah Forgey*

*Faculty Mentors: Sharon Bowland*

By 2030 the population of people age 55 and older in the U.S. will be approximately 75 million which will make older adults account for 20% of the total U.S. population. In 2015 there were approximately 3 million adults age 55+ that identified as a part of the LGBTQ community and by the year 2030 it’s estimated that there will be 7 million LGBTQ adults 55+. Often LGBTQ individuals living in long-term care facilities do not feel safe or comfortable in disclosing any information to the staff of the facility. LGBTQ adults age 55+ experience high rates of discrimination and substandard service in long-term care facilities because of their sexual orientation, gender identity or gender expression. Individuals receiving long-term care services and supports have the same right to be free from discrimination and harassment as any other individual. This project focuses on various surveys and studies done with LGBTQ adults age 55+ and the thoughts and feelings they may experience when living in long-term care facilities. This project will offer some insight into ways that providers of long-term care can be made aware of how their attitudes and actions may impact the way they provide care and services. As well as ideas and strategies to respectfully work with LGBTQ individuals in long-term care facilities developed by SAGE: Advocacy & Services for LGBT Elders. Policy implications will also be considered.

**College: CSS**

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10:30am – 4:00pm

**Medicare and SHIBA Program, Location: Senior Hall, 2nd Floor Lounge**

*Presenters: Irma Roman*

*Faculty Mentors: Bowland Sharon*

This project will examine Medicare options, challenges, and myths. The SHIBA (Statewide Health Insurance Benefits Advisors) Program in Washington State is offered through Aging and Long Term Care of Eastern Washington. SHIBA includes free, unbiased, and confidential help to older persons who face Medicare and health care choices. The program is made up of community volunteers, local sponsoring agencies, and community partners. Methods: I will conduct a literature search of peer-reviewed journals and research to explain how policy is impacting Medicare and in turn how Medicare is impacting the decision-making of the older population. Policies that put SHIBA in place in our community will also be explored.

**College: CSS**
Music Therapy for Dementia Patients, Location: Senior Hall, 2nd Floor Lounge
Presenters: Shanette King
Faculty Mentors: Dan Ruddell

Millions of older Americans have been diagnosed with some form of dementia. In a society that primarily relies on pharmaceutical treatments, it seems that alternative forms of therapeutic treatments are having profound effects. For example, studies on the links between music and overall brain activity are getting amazing results. Improved functions of cognitive reasoning and complex motor skills are being brought back from the void associated with various stages of dementia. Social interaction and family relations are being rebooted, improving the quality of life exponentially. As well, enhanced memory recall, positive changes in mood, and a rediscovered sense of control have all been discovered through music therapies.

My research poster project will focus upon the positive impact(s) that music therapy has on people diagnosed with dementia. Positive impacts may include, but not be limited to improved cognitive reasoning, memory recall, and invigorated motor skills that enhance a person’s activities of daily living.

College: Community College of Spokane

Social Isolation and what can be done to Improve Social Connection, Location: Senior Hall, 2nd Floor Lounge
Presenters: Sierra Smith
Faculty Mentors: Sharon Bowland

Covered will be the description of social isolation in older adults and how it is defined institutionally and from policy perspective. Why it is a social issue and the physical and mental implications that stem from social isolation. There are current solutions to the problem but it doesn’t resolve the overall problem of aiding older adults in making actual social connections. Using current peer reviewed research and current programs already in place this presentation will outline what more can be done to resolve the problem.

College: CSS

The Impact of Sleep Disorders on an Elderly Person's Quality of Life, Location: Senior Hall, 2nd Floor Lounge
Presenters: Shirley Hart
Faculty Mentors: Daniel Ruddell

Sleep disorders are fairly common in older adults. As people agesleep patterns and habits change. As a resultolder adult people may have trouble falling asleepor they will sleep fewer hours and wake up frequently throughout the night or early morning. Simply statedthey get less quality sleepwhich can lead to health concerns like increased risks for falling and daytime fatigue. Primary sleep disorders such as insomnia, sleep apnea, restless legs syndrome and circadian rhythm disorders affect a broad range of demographics. Butas people age these sleep disorders pose an increased risk to health and contribute to serious problems impacting an elderly person's quality of life.

Studying the causes of sleep disorders is helping us to identify safer and more effective ways to treat problems such as insomnia, sleep apnea, and depression. My research poster project will look at the impact of sleep disorders in older adults. I will also research some of the new therapies being used to treat these disorders to help improve the quality of life for people as they age.

College: Community College of Spokane

The Prospective Impact of Contemporaneous InnovationsApprises and Strategies for Progression in Evidence-Based Falls Prevention Programs, Location: Senior Hall, 2nd Floor Lounge
Presenters: Marc Andrews
Faculty Mentors: Anna Tresidder

Currently in this country there is an ever-expanding elderly populationwith falls being the paramount source of fatal and non-fatal injuries for older Americans. This poster presentation incorporates the latest innovationsupdates and strategies for progression of evidence-based falls prevention programs that were acquired at the recent 2018 conference of the American Society on Aging held in San Franciscoand will demonstrate how they could benefit the communities that makeup the Tri-Cities area in Washington State. Based on four widely disseminated evidence-based falls prevention programs that were discussed at a sessionthis poster will also evince the capabilities of them and show how older adult participants can progress within and between interventionsalong with discovering different strategies that address the varying levels of falls risks that can come with senior populations.

College: CHSPH
An acromioclavicular joint sprain is a very common condition seen in sports in which acute trauma leads to a separation of the two bones forming the joint. The two bones are attached by the AC ligament and several other ligaments such as the coracoclavicular ligament and coracoacromial ligament. The most common mechanism of injury to the AC joint is landing on the shoulder/elbow falling on an outstretched hand. Sprain to the sternoclavicular joint is not so common as this injury occurs usually when an athlete is struck on the back or side of the shoulder. The SC joint is covered with articular cartilage to help the sternum and clavicle glide easily along each other. The anterior and posterior sternoclavicular ligaments hold the joint in place; these are the ligaments sprained with MOI. The athlete in this case study is a 14-year-old female swimmer who was diagnosed with grade II sprains to the sternoclavicular joint and acromioclavicular joint of the right upper extremity following a swim practice. During the swim practice the athlete miscounted her strokes during the back stroke coming in contact with the wall jolting her body and spraining her AC and SC joints. Since then the athlete has followed up with doctors and rehabilitation with physical therapy. In the athletic training room we have been working along side the physical therapist to increase range of motion and mobility. Also utilizing images from MRI scan looking for a possible labral tear. Providing a case report on this condition will assist athletic trainers become more knowledgeable and aware of a condition they may encounter in their profession.

College: CALE

Knee dislocations with multiligamentous sprains are a rarely seen in sports. The recovery time is long and tedious surgery is most often required. However, ligaments are severely sprained further intervention may be required. The athlete in this case study is a 17-year-old male professional hockey player who sustained a knee dislocation during the 2016-17 season. The athlete received surgery to reconstruct his ACL and PCL and repair his MCL; however, the recovery was slow and after 8 months the MCL was still lax. The athlete decided on a second surgery for an internal brace to repair the ligament. The internal brace technique allows for early rehabilitation as it uses a high-strength suture tie to augment injured tissues or a primary repair. Studies have shown the time to failure for internal bracing is significantly lower than that for intact state repair allograft (Glimer et al. 2016). As a prospective NHL player where valgus forces are often placed on the knee, the internal knee brace adds stability to his MCL would help prevent further injury to those ligaments. The purpose of the case report is to describe the anatomy of the knee and the signs and symptoms pertaining to this condition; as well as the surgical procedure for ligament reconstruction and repair that the surgical procedure internal bracing and rehabilitation used will be discussed. Providing a case report on this condition will assist athletic trainers to become more knowledgeable and aware of a condition they may encounter in their profession.

College: CALE

The patient is an 18-year-old female freshman who is a right hitter/middle blocker on the volleyball team. Halfway through the season she went up to block a hit during practice and started having throbbing pain in her shoulder. After several weeks the athlete was diagnosed with a SLAP lesion on her right shoulder along with a rotator cuff strain and shoulder impingement. For the study research will be conducted in 3 different ways. First by communication through interview history and the athlete’s personal experience as she goes through pre-operative surgery and rehabilitation. Secondly, from my own expertise as I’ve taken classes and studied the material and will have first hand observation of her surgery. Lastly, I will gather information through online research, other preceptor insights, and scholarly books to help explain the details or best most effective rehab for the athlete. Over the next few months interviews and data will be recorded through her rehabilitation process with the purpose to help further understand and gather extensive insight into this problem. Evidently, conservative treatment did not solve the symptoms so this patient opted to have surgery. The primary purpose of this case report is to describe the injury process and symptoms prior to surgery the surgical procedure and post-operative rehabilitation used for this athlete. Providing a case report on this condition will assist athletic trainers become more knowledgeable and aware of a condition they may encounter frequently in their profession.

College: CHSPH
Graves Disease is a form of hyperthyroidism most commonly seen among women before the age of 40 and rarely seen in the young male population (Brent H. Messick 2010). Grave’s disease is an autoimmune disorder characterized by an enlarged thyroid gland with a familial predisposition (Cuppett & Walsh 2012). This athlete in the case study is a 19-year-old male football player who first reported symptoms in October 2016 before being diagnosed. He has since had diagnosis and treatment for his Graves disease and has progressed well. The purpose of this case report is to describe the anatomy of the thyroid and other anatomical structures involved as well as the signs and symptoms pertaining to this condition. We will also discuss treatment options and procedures and the rehabilitation process. Having a case report on this condition will help athletic trainers become more knowledgeable of a condition that they may encounter in their profession.

College: CALE

The meniscus is a fibrous cartilage that acts as a shock absorber within the knee joint. Two of these can be found within the knee: a medial meniscus and a lateral meniscus. These fibrous cartilages are normally crescent-shaped but in this case the patient’s meniscus is more like a half moon or disc-like shaped. When the meniscus appears in this form it is referred to as a discoid meniscus. Roughly 1-3% of people are affected by this defect within the United States. The cause of this is unknown but it is normally present at birth. The purpose of this case study is not only to understand what a discoid meniscus is but also to be able to identify the symptoms that occur in this condition and how to treat it. Providing a case report on this condition will assist athletic trainers to become more knowledgeable and aware of a condition they may encounter in their profession.

College: CALE

The Medial Collateral Ligament (MCL) originates from the medial epicondyle of the femur and inserts as the medially condyle of the tibia creating stability to the medial side of the knee (Jones & Moss 2015). For treatment for a MCL sprain generally use non-operative options for all three grades of sprains unless the patient has other ligaments also injured. The athlete that was studied was a 21-year-old football athlete with a grade two MCL sprain. The athlete was evaluated by an athletic trainer and a physician’s assistant (PA). Then he went through a rehabilitation program which took about 6 weeks to return to play. After he was cleared he could play in the last few season games and has had no problem since then.

College: CALE

In the summers of 2007-2010 the Spokane Tribe of Indians collected benthic macroinvertebrates (BMIs) from the Upper Columbia River using three techniques: benthic sled, benthic drift, and artificial substrates. An analysis of the samples collected by these methods revealed significant discrepancies in the types of organisms caught. Benthic sled and drift methods collected mainly planktonic taxa, primarily small crustaceans. This varies significantly from the community structure of the artificial substrate samples (p

College: CSTEM
2:00pm – 3:15pm  

P  Active Living in Cheney: Perceptions of Health Physical Activity and Park Trail and Open Space Access and Safety among Proximate Residents, Location: Hargreaves, 2nd Floor - 10A  

Presenters: April Gunderson  
Faculty Mentors: Sarah E. Mount, Anna Tresidder  

Regular physical activity can improve health and help reduce risk for several diseases and health conditions. Access to park trails and open space provides increased opportunities for residents to engage in physical activity. Safety is often a factor that contributes to the use of park trails and open space. The purpose of this study is to understand residents’ perceptions of their health physical activity and park trail and open space access and safety before and after the development of a proposed trail system using a pre- and post-survey study design to determine whether the proposed trail system increased physical activity levels and improved the health of the surrounding community. The intent is that this study provides valuable insight into the benefits of park trails and open space. As the development of the proposed trail system has not yet occurred this research will solely report on the findings of the pre-survey.  

College: CHSPH

2:00pm – 3:15pm  

P  Assessing Succinic Semialdehyde Dehydrogenase Drosophila melanogaster Mutants, Location: Hargreaves, 2nd Floor - 2A  

Presenters: Seth Buller, Peyton Owen  
Faculty Mentors: Luis Matos  

Succinic semialdehyde dehydrogenase (SSADH) deficiency is a rare autosomal recessive mutation that prevents those affected from properly breaking down the neurotransmitter GABA. GABA builds up in the brain and participates in an alternate biochemical pathway that can cause numerous health problems including developmental delay, hypotonia, ataxia, and seizures. Despite the severity of symptoms there are currently no reliable methods for treating the disease. Further research requires a reliable animal model and the current mouse model is not reliable. In this study we use SSADH knock-out flies to ascertain quantifiable SSADH-deficiency phenotypes. We analyzed fly motor ability with a knock down test for two mutant lines and a control line. In order to amplify the difference in phenotype between the control flies and mutant flies we are currently exposing the flies to various concentrations of glutamic acid (a precursor for GABA). Reliable manipulation of the phenotype will allow us to pursue therapeutic measures to ameliorate the effects of the disease in the flies. Preliminary data indicate that mutant SSADH flies are significantly more physically active than wild type flies. This work is our first step in establishing SSADH fly mutants as a reliable disease model for future therapy research at EWU.  

College: CSTEM

2:00pm – 3:15pm  

P  Assessing the Potential Antimicrobial Properties of Hemp Fabric, Location: Hargreaves, 2nd Floor - 2C  

Presenters: Alexander Lahman  
Faculty Mentors: Javier Ochoa-Reparaz  

It has been proposed that components derived from Cannabis sativa exhibit antimicrobial activity. Cannabinoids have been shown to be active against clinical isolates of antibiotic-resistant bacteria such as methicillin-resistant Staphylococcus aureus (MRSA) strains. However, there is not much research on whether or not hemp fabric retains these molecules or their functionality once it has been processed into a textile material. The goal of our project was to assess the ability of hemp fabric to inhibit bacteria growth. In order to assess these properties, the viability of Staphylococcus aureus grown on 100% cotton and 100% polyester control fabrics was compared to the viability of Staphylococcus aureus grown on 100% hemp fabrics as well as blends of these fabrics in varying percentages. The method for bacteria culture and quantification used followed the standardized AATCC Test Method 100-2004 designed to assess the antibacterial finishes on textiles. In addition to this hemp fabric’s ability to inhibit bacteria growth was tested via the agar diffusion method using the AATCC bacteriostasis agar and Staphylococcus aureus. Testing using the AATCC Test Method 100-2004 yielded a trend of inhibited growth associated with hemp fabric when compared to 100% cotton fabric. There was no zone of inhibition produced from the agar diffusion test. Our results indicate that the antimicrobial properties of hemp fabrics are limited to surface contact between the material and the microbe.  

College: CSTEM
Bilateral Labral Repair due to FAI caused by CAM Deformity in a Collegiate Basketball Player: A Case Report, Location: Hargreaves, 2nd Floor - 7B

Presenters: Ty Hollmann, McKenna Patrick
Faculty Mentors: John Gerber

Femoral acetabular impingement (FAI) is defined as abnormal mechanics between the femoral head-neck junction and the acetabulum rim which can lead to pain and intra-articular damage (Chaudhry 2013). The athlete in this case study is a 21-year-old female basketball player who first developed symptoms over 2 years ago. This athlete has since presented with bilateral symptoms and undergone two surgical procedures to repair the torn labrum in both hips resulting from the CAM deformity. The purpose of the case report is to describe the anatomy of FAI with the accompanying CAM deformity and the signs and symptoms pertaining to this condition. Also the surgical procedure and rehabilitation used will be discussed. Providing a case report on this condition will assist athletic trainers become more knowledgeable and aware of a condition they may encounter in their profession.

Case Study of a 21 year old Collegiate Football Athlete with a Fibular Fracture, Location: Hargreaves, 2nd Floor - 6A

Presenters: Jayme Schaefer, Eli Strom
Faculty Mentors: John Gerber

Fibular fracture due to contact to the lower extremity is fairly common among fractures in collision sports such as football. Symptoms are painswellingdeformityinability to walk or difficulty walkingdue to the fibula accounting for 20% of the lower leg weight bearing. The athlete in this case study is a 21-year-old male football player who was sustained this injury mid-august 2017. This athlete had previously had a Tib Fib fracture to the same leg 4 year previously which required surgery the surgeons placed a rod in the tibia. He initially did not require surgery since the bones where in alinementhe received a hard cast for 4 weeks then a walking boot for 2 3 weeks. The two halves of his fibula did not heal properly so he is going to need surgery in December of 2017 to re break the bone and put a plate in to hold the two halves together. The purpose of the case report is to describe the anatomy of a fibular fracture and the signs and symptoms pertaining to this condition. Also the surgical procedure and rehabilitation used will be discussed. Providing a case report on this condition will assist athletic trainers become more knowledgeable and aware of a condition they may encounter in their profession.

Civic Engagement: Learning is a Journey, Location: Hargreaves, 2nd Floor - 12B

Presenters: Anna Tole
Faculty Mentors: Teena Carnegie

The goal of service learning is to “combine learning goals and community service in ways that can enhance both student growth and the common good” (Bandy). The student works with a community partner using skills from the classroom to meet a community need. This form of learning provides the student with a more hands-on experience pushing them to communicate effectively with their team and their community partner. Since the outcome of service learning helps others students gain an enhanced understanding of the various needs that exist in the community. Being exposed to various issues can help students become more aware of their own values and the types of causes they want to support. Furthermore service learning is mutually beneficial. As the student puts their skills to use the community partner benefits from the work the student completes. For these reasons and more service learning is an absolute necessity to better prepare the student for life after college. In this poster I will be describing the service learning project that I completed in Public Relations Writing and what I learned from the experience. Split up into different teams my entire class created a PR Campaign. Each team was responsible for a different aspect of the campaign: social media promotion poster design in-person promotion at a ball game and a post in The Easterner. Our community partner was Camp Journey an organization that provides a week-long getaway for young cancer survivors. For my part my team and I collaborated to design posters that were eye-catching and informative. We provided Camp Journey with templates of our designs so that they could reuse them in the future. Through this experience I became exposed to young people struggling with cancer – a very special community that I had no previous connection to. I gained new perspective of the types of organizations I could work for in the future and the incredible causes that I could help promote.

College: CALE
Community Grant Writing: Youth Homelessness, Location: Hargreaves, 2nd Floor - 14C
Presenters: Charlene Gray
Faculty Mentors: Teena Carnegie
Service learning is a strategy that integrates relevant community service with course content as well as guidance, community perspective, and class objectives that go beyond a textbook. There are several components that go into service-learning. "It provides students a unique opportunity to access knowledge and expertise that resides in the context of community" (http://www.washington.edu). This is significant to students because it not only allows them to develop writing skills, but it also increases their motivation and engages them with community partners. Through this process, students develop skills and the unique opportunity of practicing meaningful and influential real life skills.

In technical communications we strive to improve academic learning through projects with community partners under the supervision of professors. The program gives us real world experiences while we learn and gain lasting connections with the community. We learn a wide set of skills during the program (writing, design, and research). This prepares us for long-term professional relationships and for employment after graduation.

In this presentation, I will examine how a team collaboratively synthesized, understood, gathered, and organized information. While writing a grant proposal for a community partner, our group worked collaboratively to meet their mission of decreasing homeless youth using their Student Impact Center. Not only was this project beneficial to our community partner, but it was also located in an environment where we were creating a better community and hopefully bringing awareness to homelessness. In the grant proposal, our team requested $20,000 for new washers and dryers, paint, storage materials, and other ancillary costs that would be used in a laundry room re-fresh at the Student Impact Center, which also supports the clothing closet. Throughout this process we gained a deeper understanding of working in a team and learned to write a grant proposal.

Does the Market for Player Salaries Reward Intangible Characteristics of Professional Basketball Players in the NBA?, Location: Hargreaves, 2nd Floor - 13C
Presenters: Ali Hussen
Faculty Mentors: Kelley Cullen
Although there is much research into the connection between measurable performance and pay for professional athletes economists have struggled to identify direct links between intangible player characteristics and salary. Previous studies have looked at how one athlete’s pay is affected by the attributes of other teammates in the NBA. Results have found that co-worker attributes do influence an individual’s pay depending on the nature of the team or production environments. This project extends the research by trying to assess whether the labor market rewards players for possessing intangible characteristics themselves. To do this we will use a two-stage approach whereby we will create instruments such as toughness intensity and passion and include them in the second stage with typical measures of player performance as explanatory variables in a wage function. Using NBA data on individual performance and pay from 2000 to 2015 we will use a panel data approach to test for random effects (changes in the CBA lockout etc.) and team-specific fixed effects as well. We hypothesize that players with greater toughness intensity and passion will receive higher salaries ceteris paribus.

Effect of Invasive Reed Canarygrass (Phalaris arundinacea) on Invertebrates in Wetlands of Turnbull National Wildlife Refuge, Location: Hargreaves, 2nd Floor - 4A
Presenters: Gunner Davies
Faculty Mentors: Camille McNeely
This study investigated the relationship between terrestrial invertebrate communities and the invasive grassreed canary grass (Phalaris arundinacea) in wetland riparian zones. Three wetlands in Turnbull National Wildlife Refuge (CheneyWA USA) served as study sites. Cursorial invertebrates were collected with pitfall traps in June and September 2017. In June pitfall traps were placed in areas of reed canary grass monocultures and areas with mixed mainly native vegetation. In September pitfall traps were also placed in bulrush or cattail monocultures in addition to the reed canary grass and native vegetation. Invertebrates were stored 70% ethanol at 5 C until they were identified to family. I used length-weight regressions to estimate total invertebrate biomass for each sample. I compared invertebrate abundance biomass and taxon richness among vegetation types and between June and September for reed canary grass and native vegetation samples. Pitfall traps in reed canary grass in June had significantly fewer invertebrates compared to those in native vegetation.
2:00pm – 3:15pm

P  Effect of Serratiopeptidase Supplement on Drosophila Melanogaster, Location: Hargreaves, 2nd Floor - 3B
Presenters: Jessica Demyen, Maria Paz Carrasco Ojeda, Christina Ramelow
Faculty Mentors: Luis Matos
Serratiopeptidase is a proteolytic enzyme produced by enterobacteria Serratia marcescens in the gut of silkworms. Serratiopeptidase is referred to as the “miracle enzyme” for purportedly breaking up blood clots and decreasing inflammation as it has been used as a supplement in Asia and Europe for over 30 years. However, there is little scientific evidence supporting the claims made by the entities selling this enzyme. The purpose of this study is to determine how one of these commercially available serratiopeptidase products affects development (proxy for fitness) in wild-type Drosophila flies. The flies were reared in food containing different enzyme concentrations. Developmental metrics (days to pupation and to adult) were measured and a behavioral negative geotaxis assay was performed. Development metrics for controls and test flies were not significantly different across the treatments. However the 500µg/mL dose yielded significantly more males and females resulting from a significant increase in pupa to adult success.

College: CSTEM

2:00pm – 3:15pm

P  Effects of a Pre-workout Supplement on Hemodynamic Response During and Post Resistance Exercise, Location: Hargreaves, 2nd Floor - 5A
Presenters: Donald Sharp
Faculty Mentors: Christi Brewer
‘Pre-workout’ refers to a variety of substances that claim to enhance energy and extend exercise duration when taken before exercising. However, there is little research investigating the effects of pre-workout on hemodynamic responses during exercise. PURPOSE: To determine the effects of a pre-workout supplement (PWS) on heart rate (HR) and blood pressures (systolic SBP, diastolic DBP) responses to upper body resistance exercise. METHODS: Six college-aged males and females completed a familiarization session followed by 2 resistance training workouts: control (PWS-) and treatment (PWS+) trials. The PWS was consumed 20 min prior and contained 200mg caffeine, 2.75g arginine and agmatine and 1.6g β-alanine. HR was measured manually and BP was measured with a digital cuff prior to and immediately after exercise as well as after 6-minute passive recovery. Data were analyzed using a within-subjects repeated measures ANOVA with an alpha level set at 0.05. RESULTS: PWS had no significant effect on pre-exercise HR (PWS - 74 ± 11 bpm; PWS+ 76 ± 7 bpm, p = 0.571), SBP (PWS - 118 ± 3 mmHg; PWS+ 126 ± 15 mmHg, p = 0.236) or DBP (PWS - 75 ± 7 mmHg; PWS+ 78 ± 5 mmHg, p = 0.206). PWS had no significant effect on exercise HR (PWS - 101 ± 19 bpm; PWS+ 94 ± 11 bpm, p = 0.41), SBP (PWS - 131 ± 6 mmHg; PWS+ 114 ± 17 mmHg, p = 0.71) or DBP (PWS - 78 ± 7 mmHg; PWS+ 74 ± 8 mmHg, p = 0.23). PWS had no effect on recovery HR (PWS - 82 ± 12 bpm; PWS+ 85 ± 10 bpm, p = 0.55), SBP (PWS - 119 ± 4 mmHg; PWS+ 128 ± 12 mmHg, p = 0.08) or DBP (PWS - 77 ± 6 mmHg; PWS+ 76 ± 10 mmHg, p = 0.91). CONCLUSION: Results suggest that PWS had no significant effect on HR or BP prior to or during exercise. Despite this, participants reported experiencing side effects of after ingesting the supplement. Future research should compare multiple brands of PWS and explore the effects of separate ingredients in PWS as well as quantify perceived effects by participants.

College: HSPH

2:00pm – 3:15pm

P  Energy Expenditure of Performing Hands-Only Cardiopulmonary Resuscitation, Location: Hargreaves, 2nd Floor - 6C
Presenters: Johnathan Valdez
Faculty Mentors: Nate Lawton, Katie Taylor
Early cardiopulmonary resuscitation (CPR) by civilian responders is a critical aspect in the survival of cardiac arrest patients. According to the American Red Cross (ARC) the average response time to a 911 call is 8-12 min. High-quality CPR performed as soon as possible following cardiac arrest considerably increases a person’s chances of survival and recovery. It is possible that fatigue may decrease CPR quality and to date no data exists on the metabolic cost of performing hands-only CPR. PURPOSE: To determine the energy expenditure of performing hands-only CPR during the average emergency response time. METHODS: Eight college-aged participants (23.6 ± 4.6 years) with a current CPR certification from the ARC or American Heart Association (AHA) volunteered for the study. Anthropometric measurements were collected. Participants were then fitted with a heart rate (HR) monitor. Indirect calorimetry was used to measure oxygen consumption and caloric expenditure during hands-only CPR for the minimum 8-minute response time. Participants were instructed to provide hands-only CPR to a manikin at a rate of 100-120 compressions per minute with a metronome (110 bpm) providing pacing. Descriptive statistics (mean ± SD) were evaluated for peak HR, peak metabolic equivalents (METs), estimated maximal HR, percent of maximal HR and caloric expenditure (kcals). RESULTS: Participants expended 33.3 ± 13.7 kcals when performing hands-only CPR for 8 minutes. Further participants provided compressions at an intensity of 5.7 ± 1.5 METs. CONCLUSION: Our data suggest that the metabolic cost of performing hands-only CPR for the minimum 8-minute response time is comparable to the energy expenditure of a very brisk walk. One of the common reasons to discontinue CPR is that the responder is too exhausted to continue. The results of our study suggest it is unlikely that cardiorespiratory fatigue is the primary cause of exhaustion. Therefore future research should aim to measure the energy expenditure of hands-only CPR to volitional exhaustion and identify perceived sources of fatigue.

College: CSTEM
Enzyme-based therapeutics have become popular in disease therapy due to the efficiency and selectivity of enzymes. We propose using serratiopeptidase, a proteolytic enzyme isolated from the intestine of Bombyx moria silkworms, as a therapy to treat inflammatory diseases. Serratiopeptidase is known for inducing fragmentation of fibrinous aggregates (like blood clots) reducing viscosity of exudates (masses of cells and fluid) involved in inflammation and managing pain. Currently, individuals can ingest this enzyme in time-release capsules but an insufficient amount of the enzyme reaches the bloodstream. Thus, our goal is to develop a novel delivery method for serratiopeptidase through genetically engineered probiotic that would produce the enzyme in the gut. For this new delivery method, we designed a plasmid (pEWU1) containing the codon-optimized serratiopeptidase gene sequence. pEWU1 was designed such that the enzyme will continuously be produced and secreted by the bacteria living in the gut. Additionally, pEWU1 is a food-grade plasmid as it does not contain antibiotic resistance genes but instead has a lacF+ selection marker allowing the bacteria to use lactose as an energy source. This plasmid will be used in future research to study the effects of serratiopeptidase produced by the probiotic on inflammatory diseases.

College: CSTEM

The Wingate Bike Test is a method of measuring a person's lower body anaerobic peak power output (PPO) and mean power output (MPO). Previous research has shown that static stretching prior to activity can decrease PPO and MPO. Limited research exists on the effects of rest intervals on PPO and MPO following static stretching. PURPOSE: To determine the difference in PPO and MPO across different rest interval periods of static stretching prior to Wingate Bike Test. METHODS: College students (n=15; 11 females [21.9±2.4] males [20.8±0.8]) volunteered for the study. Three tests were conducted in a within-subjects design over a 5-day period with 48-h between tests. Anthropometric measures included age, sex, height, and weight. Each session included a lower body static stretching routine (8-10 min) followed by a rest interval of 0, 5, or 10 min. Post-rest participants performed a 30-second Wingate Test with a 3-min warm-up and 2-min cool-down. Data were analyzed using a within-subjects repeated measures ANOVA and Tukey's post-hoc analysis. RESULTS: There was no significant difference across rest intervals on PPO for either sex. MPO was significantly different (p=0.04) for males between the 5-min (611.1±122.1 Watts (W)) and 10-min (630.6±141.4 W) rest interval sessions. MPO was not different for either sex between the 0 (606.2±140.4 W) and 10-min rest interval session (p=0.06). CONCLUSION: MPO was significantly higher for males but not females in the 10-min rest interval session compared to the 5-min rest interval. This suggests there is an increase but not a dose-response MPO with a larger rest interval in young adult males. Limitations included no control group and lack of randomization of rest interval order. Future research should control for these limitations to determine the role of rest intervals and static stretching on PPO and MPO during anaerobic testing in young adult males and females.

College: CAE

Enzyme-based therapeutics have become popular in disease therapy due to the efficiency and selectivity of enzymes. We propose using serratiopeptidase, a proteolytic enzyme isolated from the intestine of Bombyx moria silkworms, as a therapy to treat inflammatory diseases. Serratiopeptidase is known for inducing fragmentation of fibrinous aggregates (like blood clots) reducing viscosity of exudates (masses of cells and fluid) involved in inflammation and managing pain. Currently, individuals can ingest this enzyme in time-release capsules but an insufficient amount of the enzyme reaches the bloodstream. Thus, our goal is to develop a novel delivery method for serratiopeptidase through genetically engineered probiotic that would produce the enzyme in the gut. For this new delivery method, we designed a plasmid (pEWU1) containing the codon-optimized serratiopeptidase gene sequence. pEWU1 was designed such that the enzyme will continuously be produced and secreted by the bacteria living in the gut. Additionally, pEWU1 is a food-grade plasmid as it does not contain antibiotic resistance genes but instead has a lacF+ selection marker allowing the bacteria to use lactose as an energy source. This plasmid will be used in future research to study the effects of serratiopeptidase produced by the probiotic on inflammatory diseases.

College: CSTEM

During a 5-day period with 48-h between tests. Anthropometric measures included age, sex, height, and weight. Each session included a lower body static stretching routine (8-10 min) followed by a rest interval of 0, 5, or 10 min. Post-rest participants performed a 30-second Wingate Test with a 3-min warm-up and 2-min cool-down. Data were analyzed using a within-subjects repeated measures ANOVA and Tukey's post-hoc analysis. RESULTS: There was no significant difference across rest intervals on PPO for either sex. MPO was significantly different (p=0.04) for males between the 5-min (611.1±122.1 Watts (W)) and 10-min (630.6±141.4 W) rest interval sessions. MPO was not different for either sex between the 0 (606.2±140.4 W) and 10-min rest interval session (p=0.06). CONCLUSION: MPO was significantly higher for males but not females in the 10-min rest interval session compared to the 5-min rest interval. This suggests there is an increase but not a dose-response MPO with a larger rest interval in young adult males. Limitations included no control group and lack of randomization of rest interval order. Future research should control for these limitations to determine the role of rest intervals and static stretching on PPO and MPO during anaerobic testing in young adult males and females.

College: CAE

Geologic and Anthropogenic History of Spokane Revealed by Subsurface Projections for Stormwater Disposal.

Faculty Mentors: Chad Pritchard

Increasing population and development in urban areas pose challenges for stormwater management. Water Well Reports were interpreted and projected to find potential stormwater disposal sites. The City of Spokane is concerned about stormwater disposal, Location: Hargreaves, 2nd Floor - 1B

Faculty Mentors: Katrina Taylor, Annika Vahk

The City of Spokane is concerned about stormwater disposal, Location: Hargreaves, 2nd Floor - 1B

The Wingate Bike Test is a method of measuring a person's lower body anaerobic peak power output (PPO) and mean power output (MPO). Previous research has shown that static stretching prior to activity can decrease PPO and MPO. Limited research exists on the effects of rest intervals on PPO and MPO following static stretching. PURPOSE: To determine the difference in PPO and MPO across different rest interval periods of static stretching prior to Wingate Bike Test. METHODS: College students (n=15; 11 females [21.9±2.4] males [20.8±0.8]) volunteered for the study. Three tests were conducted in a within-subjects design over a 5-day period with 48-h between tests. Anthropometric measures included age, sex, height, and weight. Each session included a lower body static stretching routine (8-10 min) followed by a rest interval of 0, 5, or 10 min. Post-rest participants performed a 30-second Wingate Test with a 3-min warm-up and 2-min cool-down. Data were analyzed using a within-subjects repeated measures ANOVA and Tukey's post-hoc analysis. RESULTS: There was no significant difference across rest intervals on PPO for either sex. MPO was significantly different (p=0.04) for males between the 5-min (611.1±122.1 Watts (W)) and 10-min (630.6±141.4 W) rest interval sessions. MPO was not different for either sex between the 0 (606.2±140.4 W) and 10-min rest interval session (p=0.06). CONCLUSION: MPO was significantly higher for males but not females in the 10-min rest interval session compared to the 5-min rest interval. This suggests there is an increase but not a dose-response MPO with a larger rest interval in young adult males. Limitations included no control group and lack of randomization of rest interval order. Future research should control for these limitations to determine the role of rest intervals and static stretching on PPO and MPO during anaerobic testing in young adult males and females.

College: CAE

The City of Spokane is concerned about stormwater disposal, Location: Hargreaves, 2nd Floor - 1B

Faculty Mentors: Katrina Taylor, Annika Vahk

The City of Spokane is concerned about stormwater disposal, Location: Hargreaves, 2nd Floor - 1B
Geotechnical Engineering: The Impact of Water Content on the Unconfined Compressive Strength of Compacted Latah Creek Floodplain Soil, Location: Hargreaves, 2nd Floor - 1C
Presenters: Aaron Cleveland, Eric Perry
Faculty Mentors: Richard Orndorff
We conducted a variety of tests on soil sampled from the Latah Creek floodplain according to ASTM standards. We then performed a series of Unconfined Compressive Strength tests on the soil at varying water contents to study the change in strength and behavior of the soil as a function of moisture conditions. To evaluate all the changes from the increased water content for each test we created stress/strain curves that allowed us to determine the yield strength and the ultimate strength for each test. Results showed a decrease in both ultimate strength and yield strength as a result of increased water content.
College: CSTEM

Getting the House Beat Out of You: An Investigation of Domestic Violence’s Effect on Mortgage Delinquencies, Location: Hargreaves, 2nd Floor - 13A
Presenters: Alissa Ballheim
Faculty Mentors: Kelley Cullen
This empirical analysis is being conducted to investigate the effects domestic violence has on mortgage delinquency rates. I used state level panel data for mortgage delinquency rates, domestic violence (rape and aggravated assault) and demographics. I ran an OLS regression using population, unemployment, and income as independent variables and rape and aggravated assault which represents domestic violence and mortgage delinquency as a dependent variable. The results from the regression showed that all variables are statistically significant at the one percent level with the exception of income. All variables were positively correlated with the exception of the variables rape and population.
College: CBPA

High School Athlete Sustains a Contrecoup Fracture of the Medial Femoral Condyle: Slater Harris III, Location: Hargreaves, 2nd Floor - 8B
Faculty Mentors: Garth Babcock, John Gerber
“Femoral fractures are rare in the adolescent patient. A significant trauma is required to cause a femoral fracture in young athletes” (Prentice2015.) This high school athlete sustained a rare femoral fracture due to an unusual mechanism of injury. A lateral impact creating a valgus force is a typical mechanism of injury to the soft tissue of the medial knee. However, this is not the normal mechanism of a medial femoral condyle fracture. This case study will evaluate the athlete from initial incident determined pathology, surgical intervention and post-surgical rehabilitation over a 6-month timeline. Providing a case study on this unique mechanism of a rare injury will provide new insight on the rehabilitation of a Femoral Condyle Salter Harris III Fracture.
College: CALE

How Pregnancy Affects Jury Perceptions in Trials, Location: Hargreaves, 2nd Floor - 12C
Presenters: Rachel Silverthorn
Faculty Mentors: Kayleen Islam-Zwart
In 2015 Miller and Thomas looked at perceptions of women using drugs during pregnancy. The study tested whether and how harshly women should be punished depending on a variety of variables including: type of drug, legality of drug, whether the drug was used all through pregnancy, and how healthy the baby was at birth (Miller & Thomas 2015). Participants read scenarios outlining each condition and responded on a scale regarding appropriate punishment and treatments (Miller & Thomas 2015). Hufft and Peternelj-Taylor discuss perceptions and treatment of pregnant adolescents as opposed to adult women. In order to keep all equal and maintain the dignity of the young women they found that nurses must set aside their beliefs and follow closely to the laws and policies concerning their charges (Hufft and Peternelj-Taylor 2008). Pregnancy does not just lead to issues in incarceration but in everyday life as well. In the job industry it is sometimes impossible for pregnant women to get needed accommodations. For example a nurse refusing to care for an HIV-infected patient because of her pregnancy was forced her to choose between keeping her job and keeping her baby from risk. When she took it to court it was decided that since she was not being denied work solely on the premise of pregnancy it was not a forced decision and thus she was seeking preferential treatment (American Journal of Law & Medicine 1994). All of these are examples of pregnancy affecting the daily lives of women in different ways. The literature in this area had inspired the following study. The purpose of this study is to determine whether pregnancy impacts jury perception of a female defendant. It is hypothesized that a pregnant defendant will evoke sympathy in a trial situation and consequently a pregnant woman will be judged less harshly by a jury than a non-pregnant woman. Participants will be students from a Regional University in the Pacific Northwest.
College: CSS
Impacts of Temperature on Life History Traits of Invasive Eastern Brook Trout (Salvelinus fontinalis), Location: Hargreaves, 2nd Floor - 4C

**Presenters:** Kaeli Davenport  
**Faculty Mentors:** Paul Spruell

Instances of invasive fish are expected to increase with global climate changemaking it critically important to determine how these invaders will respond to environmental variation. The goal of this project is to understand how varied life history traits, e.g. growth and timing to maturity may contribute to overall success and survival of invasive eastern brook trout (Salvelinus fontinalis) in different stream temperatures. This will allow me to predict how brook trout might respond to changing temperatures that are expected to result from climate change. In September 2017 brook trout were collected using backpack electrofishing from six different streams located within the Pend Oreille river basin in eastern Washington: three warmer water streams and three colder water streams. Streams include Sullivan Creek (10-16°C)Cee Cee Ah Creek (10-14°C)Le Clerc Creek (10-13°C)Cusick Creek (18-20°C)Calispell Creek (18-20°C)and Ruby Creek (18-20°C). Temperatures presented are average maximum temperature for each stream. Fish were euthanized immediately after capture using 250 mg/L tricaine methanesulfonate (MS-222) and measured for length (mm) and weight (g). Otoliths were removed to determine size at age as well as age at maturity. Eggs were counted for females and male gonads were measured to determine gonadosomatic index (GSI = [Gonad Weight / Total Tissue Weight] x 100). In order to compare the impacts of temperature on lengthweightage and GSI of fish I will run an ANOVA. Although data analysis is ongoing preliminary results suggest interesting differences between life history traits among streams but not as a factor of temperature. This suggests other habitat factors may be more important in determining life history traits in invasive eastern brook trout. The results of this research will help contribute to ongoing brook trout management studies as well as future research into climate change impacts on non-native fish.

College: CSTEM

Increasing Dopamine Electrode Sensitivity with NCAM, Location: Hargreaves, 2nd Floor - 1A

**Presenters:** Darren Ginder  
**Location:** Hargreaves, 2nd Floor - 1A

Period of signal loss lasting between 2-4 weeks is typical when implanting dopamine (DA) electrodes. This signal loss is thought to be due to gliosis. Neural cell adhesion molecule (NCAM) is thought to reduce gliosis. While coating electrodes with NCAM for in vivo studies we found NCAM increased DA sensitivity in vitro. In this study we describe our method of NCAM coating and compare this treatment with previously established methods. The sensitivity to DA electrodes was assessed in vitro (e.g. flow cell) before and after NCAM coating. FSCV electrodes (n=6) were first sterilized with 70% alcohol and then exposed to 8M nitric acid/dry toluene (100-98%) 2% solution of (3-mercaptopropyl) trimethoxysilane 2mM 4-maleimidobutyric acid N-hydroxysuccinimide ester 100 µg/ml NCAMand 100µM Poly (ethylene glycol) -NH2. Purified isopropyl alcohol treatment was used as a comparable method (n=10). NCAM pretreatment significantly increased DA electrode sensitivity in vitro. The percent signal increase in DA sensitivity resulting from NCAM treatment was higher than with purified isopropyl alcohol. NCAM is a viable option for increasing the sensitivity of the electrode to DA signaling. Further work needs to be performed to determine if this increase in DA signal sensitivity occurs in vivo as well.

College: CSTEM

Increasing Female Student Enrollment in K-12 STEM Programs, Location: Hargreaves, 2nd Floor - 10B

**Presenters:** Aaron Howe  
**Faculty Mentors:** Anna Tresidder  
**Location:** Hargreaves, 2nd Floor - 10B

Modern social progress has allowed for more women to pursue traditionally masculine careers in areas like medicine. Despite this, many science technology engineering and mathematics (STEM) fields continue to be dominated by males both in the educational setting and in postgraduate occupations. Schools have begun to introduce female students to these career options through extracurricular activities and classroom engagement as early as their K-6 elementary education but these attempts by education systems are not always evaluated for effectiveness. During the 2017 academic year Spokane Public Schools (SPS) attempted to increase the number of female students in their summer STEM camp. They used direct marketing techniques to increase female enrollment and told teachers and other STEM specialists in the school district to encourage their female students to sign up. The goal was to increase female enrollment to 50% making the number of female and male students equal. To evaluate the effectiveness of the program data from the 2017 camp session was collected regarding female student participation. That data was compared directly to the rosters from the year before to determine if SPS's methods had worked. The comparison showed that female student enrollment had increased significantly with an average 40% of students being female in 2017 as compared to the 32% female enrollment in 2016. An 8% increase shows significant success in the initiative to increase female enrollment and the same marketing methods may be used in the future to continue increasing participation of female students.

College: CHSPH
Pinene Synthesis in Algae, Location: Hargreaves, 2nd Floor - 3A  
**Presenters:** Nicholas Bray, Taylor Mauzy, Randy Quinn  
**Faculty Mentors:** Luis Matos

The global demand for energy has increased exponentially since the industrial revolution. In 2016 the United States consumed 97.5 quadrillion BTU (British thermal units) of energy with more than 80% coming from non-renewable sources. One solution is to use biodiesel which is harvested from sustainable sources (e.g. plants). Currently unicellular algae show promise as a potential feedstock. However, the algal biofuel production is not financially feasible. Our research seeks to couple the production of pinenea naturally derived compound from pine trees in Chlamydomonas reinhardtii species of green algae. Pinene is a potential precursor to jet fuel and is substantially more valuable than biodiesel alone. To this end we have generated a plasmid vector with the two fir tree genes responsible for pinene synthesis. Chlamydomonas reinhardtii has been successfully transformed and is growing well. It is our expectation that the algae are expressing the two genes of interest. We are now undertaking further testing to determine the insertion site, the level of gene expression and the level of pinene expression. Our unique production could mitigate the low profitability of biodiesel production. The rationale being that the higher valued pinene production will subsidize the biodiesel feedstock production.

**College:** CSTEM

Primary Cavity-Nesting Birds Roost Selection Influenced by Sunset, Location: Hargreaves, 2nd Floor - 10C  
**Presenters:** Lily Crytser, Katlyn Moos  
**Faculty Mentors:** Margaret O'Connell

A keystone species influences the success of other species. In eastern Washington primary cavity-nesting birds are keystone species because the nest cavities they excavate in trees each spring are critical habitat for other vertebrate species. During winter these birds use cavities for night time roosts and change roost sites regularly to reduce predation and maximize thermoregulatory benefits. This study asks if the number of cavity-nesting birds inspecting a potential roost site is influenced by time before sunset. We hypothesized that the number of birds inspecting a potential roost site would increase closer to sunset. This study was conducted during the winters of 2016-2017 and 2017-2018 on Turnbull National Wildlife Refuge. Roost boxes were set on trees at 36 stations between 3 forest units. At each station a point count in which all birds seen and heard was conducted at 32 or 1 hour prior to sunset. We used Chi Square analysis to compare the frequency of birds observed between time periods. Combining data from both years more birds were observed during 1-2 hours as compared to 3 hours before sunset. 

**College:** CSTEM

Service Learning in Grant Proposal Writing, Location: Hargreaves, 2nd Floor - 11A  
**Presenters:** Kolod Aljohani  
**Faculty Mentors:** Teena Carnegie

"Service-learning refers to learning that actively involves students in a wide range of experiences which often benefit others and the community while also advancing the goals of a given curriculum" (University of Washington 2018). The offered opportunities help students engage with the community and gain knowledge while working with community partners. As a part of being a technical writer the need for learning the different types of writing such as grants proposal is essential. The technical communication course - Proposal Writing focuses on learning how to develop a grant proposal. As part of a service-learning project we worked with the HUB sports center. Their mission is to provide "events that have a positive impact on youth and the community" (The HUB Sports Center). As part of their mission the HUB runs the 360 program. The 360 program is designed to help 6-8th graders children after school and during weekdays. Supporting the community by assisting youth to stay in school. Failure to complete high school is a nationally recognized problem. In the US the high school graduation rate is estimated to be around 70%. That means that 30% of high school students will not graduate. The cost of dropping out can be very high: high school dropouts experience more unemployment than high school graduates; they are more likely to work in low-wage jobs; to experience poor mental and physical health; and to face an increased probability of being incarcerated for committing criminal acts or of becoming dependent on government programs. In this poster presentation I will describe the service-learning-grant-writing project. And I will discuss how I have learned about the impact of after-school programs. Their role in supporting youth and insuring that the youth stay in school. I also learned about working on a team working with community partners and grant proposal writing. 

**College:** CALE
The Effects of Adult Incarceration Rates on the Academic Achievement of Children: A Case Study of Washington State, Location: Hargreaves, 2nd Floor - 8C
Presenters: Sydney Cathcart
Faculty Mentors: Maggie apRoberts-Warren
The purpose of this study is to examine how adult incarceration effects aggregate measures of student academic success. I use county-level panel data of standardized test passage rates, graduation rates, student demographics, and incarceration rates to investigate the relationship between incarceration trends and academic achievement from 2012-2015 in Washington State. I run OLS regressions of county-level test passage rates and graduation rates regressed on incarceration rates and demographic control variables. I find that the effect of incarceration rates on academic achievement is not significant.

College: CBPA

Tibial Tubercle Reconstruction of a 20 year old Division I College Basketball Athlete, Location: Hargreaves, 2nd Floor - 7A
Presenters: Naomi Eastland, Ireland Hendrix, Lowell Kovacich
Faculty Mentors: John Gerber
The athlete in this study developed Osgood-Schlatter disease as a child. Typically, this condition resolves without surgery, but doctors believed the patellar tendon separated from his tubercle and filled the gaps in his bone with scar tissue. Because of persistent knee pain, tibial tubercle reconstruction surgery was recommended. Tibial Tubercle Reconstruction is a procedure done to reattach the patellar tendon to the Tibial Tubercle. Surgery was performed on July 31st 2017 and he is working with the EWU Athletic Training staff to work on his rehabilitation to get him back to the return to play protocol. The purpose of the case report is to describe the anatomy of the knee as it relates to tibial tubercle reconstruction. Also, the surgical procedure and rehabilitation used will be discussed. Providing a case report on this condition will assist athletic trainers to gain more knowledge and be aware of a condition they may encounter in their profession.

College: CALE

Towards Developing A Colorful Approach to Prostate Cancer Screening, Location: Hargreaves, 2nd Floor - 2B
Presenters: Alexis Johnson, Sherry Napier, Peyton Owen
Faculty Mentors: Luis Matos
Prostate cancer (PC) is the second-most diagnosed cancer among men worldwide; despite its prevalence, there is no effective means of proactive screening. The current testing method analyzes prostate specific antigen (PSA) from blood. However, seventy to eighty percent of men with elevated PSA levels who undergo biopsies do not have prostate cancer. Thus, this misdiagnosis leads to unnecessary pain and suffering; additionally, it is very expensive. For these reasons, we sought to develop a novel means of PC screening using miRNA detection. miRNAs are short ribonucleic acid sequences found in many bodily fluids including urine. The proposed diagnostic method relies on hybridization between DNA probes and the target miRNA. The hybridization is followed by an elongation step and then a detection step. During detection, a blue color is produced and is measured. Our protocol has evolved in accordance with our data in an attempt to optimize outcomes. We hope continued modification will result in improved consistency and stronger positive correlation between the miRNA concentration and the blue signal. Enzymatic activity and therefore target detection was achieved in the vast majority of trials. However, substrate binding specificity remains an obstacle. Further research will focus on mitigating the lack of specificity and optimizing the signal to improve the positive correlation between miRNA and signal. Such a test would allow for more accurate prostate cancer screening in men and would significantly reduce the number of unnecessary biopsies.

College: CSTEM
2:00pm – 3:15pm  P  Usability Testing and Application: Improving Ease of Use for CPAC Handbooks, Location: Hargreaves, 2nd Floor - 11C
Presenters: Garrett Saiki
Faculty Mentors: Teena Carnegie
The ISO definition for usability is “the effectiveness, the efficiency, and the overall satisfaction of the user when using a product or document.” Conducting evaluations or usability tests help to gather information on how users use a product to achieve their goals. The significance in having a document that has a high ease of access and is easy to use, is the difference between a successful document and one that is left unused. Without usability testing, you end up with frustrated users that do not use your product or use it in an unintended manner. Usability testing utilizes real user input and feedback to take user ideas into consideration and better develop an appealing final document or product. Improving ease of access to a document is about increasing efficiency, memorability, learnability and satisfaction. Usability testing is a study of independent users to identify and problem solve difficulties helping you to be able to identify a designs greatest flaws. As a part of the usability testing we conducted research that would be applied to the re-design of the CPAC Handbook. When re-designing the CPAC Handbook we first ran independent tests to find which problems users had with it. The tests were then used to help develop a usability test in which we could have the users help us identify what they wanted re-designed and how we could best re-design the CPAC Handbook. As a part of this presentation the importance of usability testing in developing a new CPAC Handbook will be discussed. We defined a clear problem of curriculum submitters and reviewers struggling to navigate the handbook. This lead to developing a usability test with the users using a talk-aloud method to describe their step-by-step thinking. Ultimately without a re-design users would not be inclined to use it. We recommended the handbook be split into 2 separate, straight-forward handbooks that would make it easier for each audience (reviewers and submitters) to locate necessary information.
College: CALE

2:00pm – 3:15pm  P  Usability Testing the EWU Mobile App, Location: Hargreaves, 2nd Floor - 11B
Presenters: Elisabeth Garcia
Faculty Mentors: Teena Carnegie
The ISO defines Usability as “the extent to which a product can be used by specified users to achieve specified goals with efficiency and satisfaction in a specified context of use.”

A product interface or webpage becomes usable through five components: learnability (how easy user accomplish basic tasks); Efficiency (how quickly users perform tasks); Memorability (how easily users can reestablish proficiency); Errors (how easily users can recover from errors); and Satisfaction (how pleasant is it to use). The significance of usability testing is the outcomes: Products with low usability will not be bought, interfaces with low usability will be ignored, and webpages with low usability will cause users to leave. This presentation focuses on a research project conducted on the Eastern Washington University Mobile Application, or the EWU Mobile App. Our usability research sought to answer how the App could be improved to increase the number of students who use the EWU Mobile App.

We started the study of the app by using demographics to understand who the App’s target users are (students as Eastern Washington University) and to identify user subgroups. Then we created a test plan with five tasks for representatives from each of the user groups. We collected the data generated by testing through devices such as Mr. Tappy and Morae usability testing software. Then, we triangulated those findings using the SEE-SAY-DO triangle of usability, and generated results from our findings to share with a web application development team interested in improving the EWU Mobile App.

We recommended that the EWU Mobile App implement more marketing for the App itself, recommended that more components from the EWU website be stored by the App to prevent frustrating users when the App connects to the EWU website and we also recommended more attention be given to android versions. Overall, our study showed that the App was easy to use and users loved that.
College: CALE

2:00pm – 3:15pm  P  What Factors Determine Formula One Drivers’ Annual Salaries?, Location: Hargreaves, 2nd Floor - 13B
Presenters: Jeffrey Hunt
Faculty Mentors: Kelley Cullen
Formula One racing is one of the fastest growing racing sports on the planet. This paper looks at the factors that go into a drivers’ salary. Using both a linear and a log-lin model this paper finds that experience really has no effect on how much a driver makes. At the same time the higher salaries are total points in a driver’s career and the and the nature of his or her team. This paper looks at drivers between the Formula One racing seasons of 2006-2016.
College: CBPA
What Obstacles Prevent Students from Engaging in Environmentally Friendly Behaviors?, Location: Hargreaves, 2nd Floor - 7C  
**Presenters:** Carrie Cutler, Loretta Sohappy  
**Faculty Mentors:** Sarah Mount  
According to the Environmental Protection Agency (EPA) the United States generated 33 million tons of plastic waste in 2014 of which only 9.5% was recycled. In addition, Americans use over 17 million barrels of oil a year to meet demands for plastic water bottles. Any reusable plastic that gets thrown away creates the need to harvest new raw materials contributing to pollution and energy consumption. If Americans consumed 50% fewer plastic water bottles per year they would save enough oil to power one million cars for six months. The purpose of this study was to identify college students’ attitudes, barriers, and beliefs regarding environmentally friendly behaviors such as waste reduction & recycling. A focus group was conducted to identify student attitudes towards and barriers for recycling and waste reduction. This qualitative data from the focus group was analyzed for important themes. A 12-item Likert scale online survey (“1” Strongly Agree to “5” Strongly Disagree) was administered to identify attitudes and perceived barriers for environmentally friendly behaviors. Survey data was analyzed for descriptive statistics using SPSS. Overall, the focus group & survey found convenience and knowledge to be the biggest barriers to recycling. Data suggested that there needs to be more bins in easy to access locations across campus, recycling bins should have labels showing what goes in each bin, and more signage is needed to increase visibility of recycling. Tukey post hoc analyses revealed a significant difference in recycling behaviors between males and females (29.02 vs. 26.24; p=.009) meaning males are more likely to recycle than females. One limitation of this study was focus group participants were all Public Health majors. This limits the generalizability of the responses to the rest of the university. Another limitation was few survey responses from students living on campus which inhibits understanding of recycling & waste reduction in the dorms.  
**College:** CALE

Molecular Dynamics Simulations Study of ITPA protein substrate complex, Location: Hargreaves, 2nd Floor - Table 20  
**Presenters:** Michael Metro  
**Faculty Mentors:** Yao Houndonougbo  
Inosine triphosphate pyrophosphatase (ITPA) is an enzyme that is responsible for maintaining a proper level of nonstandard nucleotides in cells. Specifically, ITPA breaks down purines inosine and xanthosine triphosphate (ITP/XTP) to their monophosphate derivatives. By doing so, it decreases the risk of genetic disorders. The Human ITPA is a homodimer of which each monomer consists of a long central beta sheet with two lobes mainly having alpha structures. The prime substrate ITP binds in the cleft formed by the two lobes. We have performed Molecular Dynamics simulations of the human ITPA with ITP bound. The simulation was carried out using the Gromacs program package and the explicit all-atom representations of both solute and solvent. The analysis of the Root-mean square deviations, Root-mean square fluctuations, and the radius of gyration of the simulated trajectories revealed the effect of substrate binding on the 3D structure and flexibility of ITPA. Our simulation provides insights on the enzyme substrate binding and catalysis. This study will contribute to the fundamental understanding of the mechanism of ITPA substrate binding.  
**College:** CSTEM
2018 EWU Symposium Student Design

Design by Claire Schueman, Visual Communication & Design

Faculty Mentor: Eric Galey